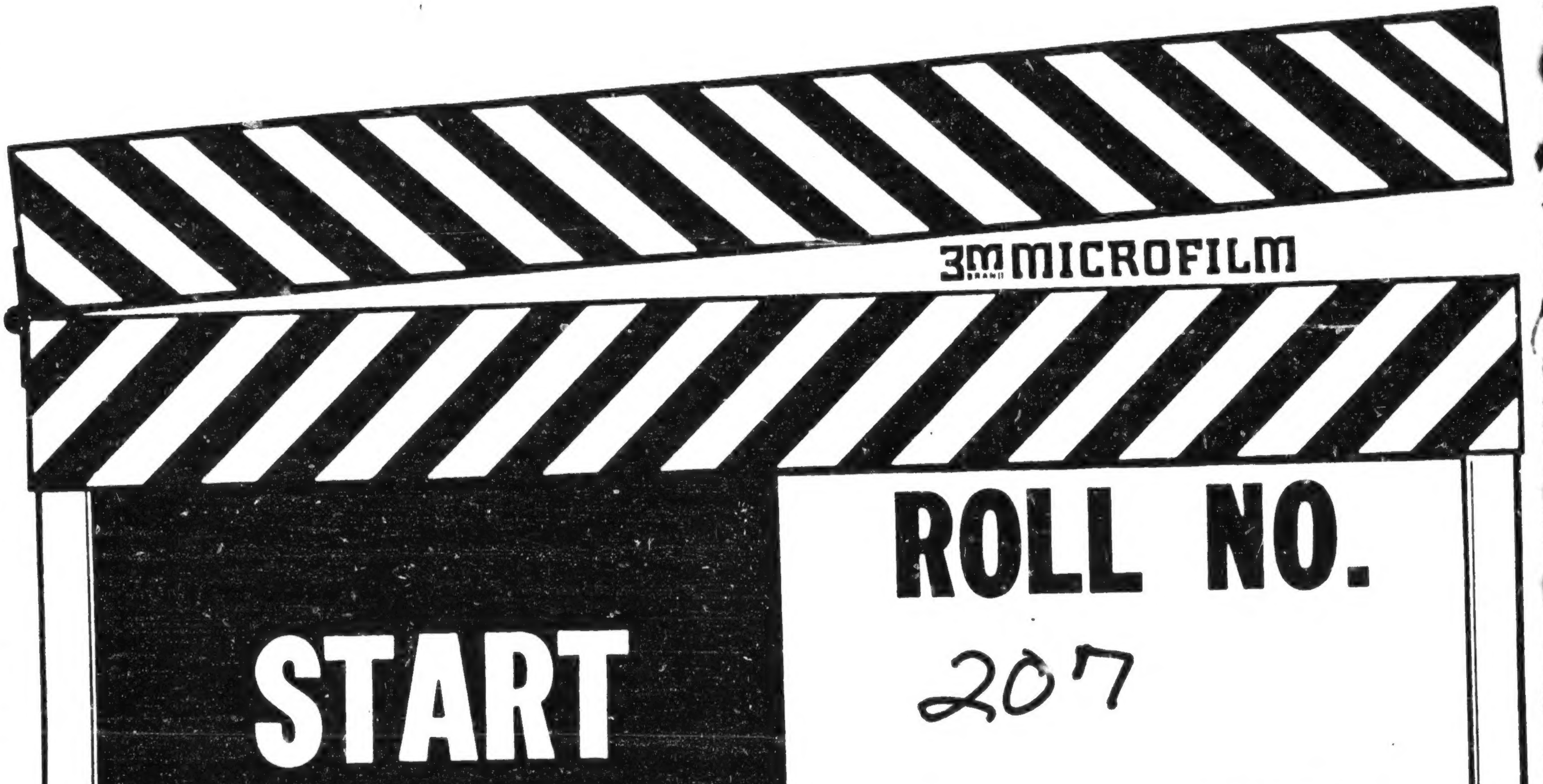
3M MICROFILM

START OF ROLL

ROLL NO.

207

CONSTRUCTION CONTRACTS

8905 #6

OREGON DEPARTMENT OF TRANSPORTATION

1979 Columbia R. Br. (N. Channel 890
Superstruc.) Sec. of E. Ptld. Fwy.
(Structure)
#6

3905

8 p

RECEIVED
DEC 22 1969
FOR FILING

Form [illegible] 121 (12-67)
UNITED STATES GOVERNMENT

# *Memorandum*

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
Bureau of Public Roads
Box 300
Salem OR 97308

DATE: December 18, 1969

In reply refer to: 08-35.6

TO : Mr. Forrest Cooper, State Highway Engineer
Salem, Oregon

FROM : R. E. Simpson, Division Engineer
Salem, Oregon

Klaboe

SUBJECT: Oregon Project I-205-7(-)312
Columbia River Bridge
Approach Fill

The proposed embankment across the Columbia River flood plain south of the bridge will undoubtedly cause considerable consolidation of the foundation materials. As you recall the Minnesota Freeway fills in the area of Delta Park settled as much as 11 feet. ?

In view of the anticipated approval of the bridge crossing by the Coast Guard it would be timely to commence foundation investigations in this area. This will allow you some lead time to determine the best method of construction and will also give you ample time to combine the highway project with the Port of Portland sand fill project in the airport and highway areas. Cost of this work can be part of preliminary engineering.

12-22-69

REFERRED TO Barber
BY ASST. STATE HWY. ENGR.

Please do

NOTED
F. B. KLABOE

RECEIVED
DEC 19 1969
OFFICE OF
STATE HIGHWAY ENGINEER

BUY U.S. SAVINGS BONDS REGULARLY ON THE PAYROLL SAVINGS PLAN

8905

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RECEIVED
DEC 4 1969

~~FOR FILING~~

# OREGON STATE HIGHWAY DEPARTMENT

INTER-DEPARTMENT CORRESPONDENCE

Portland, Oregon
December 1, 1969

SUBJECT: Port of Portland
Airport Expansion

To: F. B. Klaboe
Tom Edwards
Ivan Merchant
D. J. Barbee
F. D. Morgan
David H. Moehring

The Port of Portland has advised that they are scheduling a series of briefing sessions with their airport expansion consultant, Burns and McDonnell of Kansas City, to orient and inform other affected agencies. These sessions will begin on December 8. The Port has scheduled a session for the Highway Division from 10:30 a.m. to 12:00 noon Thursday, December 11, in their third floor Conference Room at 618 S.W. Fifth Avenue, in order that any highway representatives can discuss mutual problems with Port personnel and their consultants.

The Metropolitan Division will have representation at this meeting, and the purpose of this letter is to advise others in order that they may attend if they so desire.

NOTED
F.B. KLABOE

AE Johnson
A. E. Johnson
Metropolitan Engineer

AEJ:lh

REFERRED TO
Porter
By Asst. State Hwy. Engr.

Info

NOTED
R. L. PORTER

RECEIVED
DEC 3 1969
OFFICE OF
STATE HIGHWAY ENGINEER

8905

RECEIVED
NOV 24 1969

FOR FILING

November 20, 1969

Mr. R. L. Carroll
District Engineer
Washington Department of Highways
P. O. Box 1717
Vancouver, Washington 98663

Dear Mr. Carroll:

On Thursday, November 13 a meeting was called in Portland by the Port of Portland to explore and resolve some of the differences between the various parties involved in construction of the Columbia River Bridge on I-205.

Attached for your information are notes from the meeting made by the Bureau of Public Roads and by myself.

Very truly yours,

Forrest Cooper
State Highway Engineer

By

Tom Edwards
Assistant State Highway Engineer

TE:ja

Attachments

bc Forrest Cooper
R. L. Porter
Victor D. Wolfe
Ivan Merchant (enc.)
A. E. Johnson (enc.)
Edward L. Hardt (enc.)

FORM E-30 50M 10-68

# OREGON STATE HIGHWAY DEPARTMENT

INTER-DEPARTMENT CORRESPONDENCE

Salem, Oregon
November 19, 1969

SUBJECT: East Portland Freeway I-205
Columbia River Bridge
Navigation Clearances

To: MEMO TO THE FILE

At 1 p.m. on November 13, a meeting initiated and chaired by Adam Heineman, Port of Portland, was held in the Corps of Engineers' Conference Room to discuss navigation clearances for the proposed I-205 bridge over the Columbia River. The following were in attendance:

Kirk Roberts, Shaver Transportation Company
Ed Shields, Coast Guard
James Barbouletos, Tidewater Barge Lines
Dick Carlen, Pacific Inland Navigation Company
Paul W. Light, Pacific Inland Navigation Company
F. Lyle Ritter, Western Transportation Company
Fred W. Bartel, Corps of Engineers
Roy Tokerud, Bureau of Public Roads
Hugh B. Henry, Bureau of Public Roads
Ivan D. Merchant, Oregon State Highway Division
Tom Edwards, Oregon State Highway Division
A. E. Johnson, Oregon State Highway Division
Edward L. Hardt, Oregon State Highway Division
D. E. Brown, Columbia River Pilots
Allen G. Terry, Corps of Engineers
B. Hopman, Corps of Engineers
A. J. Heineman, The Port of Portland
John G. Oliver, Corps of Engineers
Dean L. Harshberger, Corps of Engineers
H. A. Schell, Bureau of Public Roads
R. E. Simpson, Bureau of Public Roads
F. O. Meyer, Knappton Towboat Company
Sam Geer, Willamette Tug and Barge
Don Ray, Willamette Tug and Barge
Robert O. Dodge, Corps of Engineers

Mr. Adam Heineman (Port of Portland) opened the meeting by saying that since there were objections from the marine interests to the proposed horizontal clearance of 400 feet for the main channel, the interested parties had been brought together to try to get a consensus as to what clearance would be acceptable.

During the course of the meeting, the following facts were developed:

> The towboat interests are objecting to the 400-foot clearance. They feel 500 feet of clearance is the practical minimum. They are particularly concerned because the upstream approach channel to the bridge contains several angle points, thus making this approach with large tows very difficult.
>
> The Corps of Engineers has investigated a channel change, but does not favor same because of (1) proximity to the Washington shore, (2) possibility of rock in the channel if moved northerly, and (3) shoal area to the south of the channel.
>
> The horizontal alignment of the bridge is fixed and not subject to adjustment, including the control on the Washington shore. The flight pattern for the Portland Airport has been designed to fit this alignment. The profile controlling the deck has been approved by the FAA, after making special studies for automatic flight control equipment. This profile is critical to them and cannot be raised, especially over the Columbia River channel.
>
> The bridge is not yet designed and it is conceivable that a 500-foot opening (600-foot span) with 157 feet of vertical clearance could be provided. It is estimated that the extra cost compared to the 400-foot opening design would be 1.5 million. Since the bridge will be financed with 92 percent Federal money, the State has no particular objection to the longer, more expensive span provided that this is in the public's best interest.

Mr. Paul Light (Pacific Inland Navigation Company) made a statement regarding the hearing held two years ago. He said they felt at that time that 400 feet of clearance was all they could get. If they had known the amount of clearance was negotiable, they would have started with a request well above 500 feet. He has maintained for 15 years that 500 feet is a reasonable minimum for navigation clearance. He pointed out that what is good for navigation in this area which is served by water is also good for all the citizens.

Captain D. E. Brown (Columbia River Pilots) stated that he also felt that a 500-foot channel clearance is the minimum desirable. He also mentioned he would prefer that the channel adjacent to the bridge be straightened rather than the opening changed to 500 feet.

Mr. Simpson (Bureau of Public Roads) and I both stated that we felt it was the Coast Guard's responsibility to decide, in the public's interest, what the proper clearance ought to be. Ed Shields (Coast Guard) replied that he had two choices:

1. The current permit application (400-foot clearance) could be processed to a decision but that the Coast Guard has the alternative of either approving or disapproving the permit as submitted. They cannot modify it.

2. Or, the Highway Division could submit a revised application with a current clearance shown which the Coast Guard would process with the known objections. These objections (unanswered) consist of a remonstrance by the Port of The Dalles requesting vertical clearance of 178 feet and a suit against the Corps of Engineers concerning the dredging permit.

It developed through discussion that if a 500-foot opening perpendicular to the channel was provided, the vertical clearance could be modified. Mr. Heineman said that 150 feet of vertical clearance was all their studies could justify. The towboat interests would be happy with 70-foot clearance above high water. Mr. Shields sketched a clearance diagram on the board indicating a 500-foot opening with vertical clearance of 148 feet and 144 feet at the north and south limits of this opening; 152-foot clearance at the center; and 150-foot and 147-foot clearance points 200 feet north and south, respectively, of the center of the opening. He asked if the navigation interests "could live with" this configuration. Captain Brown, Mr. Light, and Mr. Ritter (Western Transportation Company) all replied that they could.

I polled the group to determine the placement of the extra 100 feet of horizontal clearance. All the navigation people agreed that it should be added to the south end of the 400-foot opening. I cautioned the group that design studies would have to be made to determine if the clearances outlined above were feasible and that adjustments in the back spans might have to be made to provide an economical design.

Mr. Simpson said that a new clearance drawing for the permit will be submitted along the lines outlined above. He asked if anyone in the room had any objections to this proposal. There was no reply.

The meeting was adjourned at 3:30 p.m.

Tom Edwards
Tom Edwards
Assistant State Highway Engineer

cc Mr. A. J. Heineman
The Port of Portland
Box 3529
Portland, Oregon 97208

Mr. R. E. Simpson
Division Engineer
Bureau of Public Roads
Box 300
Salem, Oregon 97308

Form FHWA-121 (12-67)
UNITED STATES GOVERNMENT

# *Memorandum*

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
Bureau of Public Roads
Box 300
Salem OR 97308

TO : Files

DATE: November 17, 1969

In reply refer to: 08-35.6

Bryant AB
[illegible] —

FROM : H. A. Schell, Division Bridge Engineer
Salem, Oregon

SUBJECT: Oregon Project I-205-7(-)312
Columbia River Crossing, East Portland Freeway
Main Channel Span Length

NOTED
R. L. PORTER

On November 13, 1969 a meeting was held at the Corp of Engineers' conference room (2850 SE. 82nd, Portland) to discuss the main channel clearance proposed by the State Highway Division for the Interstate 205 bridge spanning the Columbia River. The conference was called by Mr. A. Heineman, Port of Portland, in an attempt to resolve the differences of the concerned Governmental and organized groups for this structure across a major navigable waterway. Those attending the meeting are listed below:

Pilots and Towboat Operators

Kirk Roberts
James Barbouletos
Richard Carlen
Paul W. Light
F. Lyle Ritter
F. C. Meyer
Sam Geer
Don Ray

U. S. Coast Guard

E. Sheilds

Port of Portland

A. Heineman

Corp of Engineers

John G. Oliver
Dean L. Harshberger
Fred W. Bartel
Allen G. Terry
Robert O. Dodge

RECEIVED
NOV 19 1969
OFFICE OF
STATE HIGHWAY ENGINEER

(more)

BUY U.S. SAVINGS BONDS REGULARLY ON THE PAYROLL SAVINGS PLAN

Oregon State Highway Division

Ivan Merchant
Tom Edwards
A. E. Johnson
Edward L. Hardt

Federal Highway Administration

Roy Tokerud
Hugh B. Henry

Bureau of Public Roads

R. E. Simpson
H. A. Schell

Mr. Heineman had given the Corp of Engineers the State's proposal outlining the existing channel requesting that they review the channel location to determine if the "dog leg" located just north of Government Island and east of the proposed structure could be eliminated. This would improve the navigable channel and also reduce the required span length of the I-205 structure.

The Pilots and Towboat Association came prepared to object to the 400-foot channel clearance span proposed by the State's original U. S. Coast Guard application (see Public Notice No. 69-19). They indicated that the stream velocity in this area is approximately 12 knots and barges advance at a skew (as much as 25 degrees to the channel) up the river unless they have a towline on the bow. They are now using barges up to 485 feet in length, approximately 74 feet wide, and are currently hauling 9,000 tons and are expected to go up to 12,000 tons in the future. These are ocean-going barges and there are currently two firms now using or in the process of negotiating the use of these huge barges to destinations up the Columbia River. The pilots indicated the cross-channel slide through the bridge would be very critical and, as it is now proposed, a single barge and pusher tow would go around. A bow tow barge would be necessary to prevent this problem. The towboat operators indicated that they needed a vertical minimum clearance of approximately 70 feet at high water.

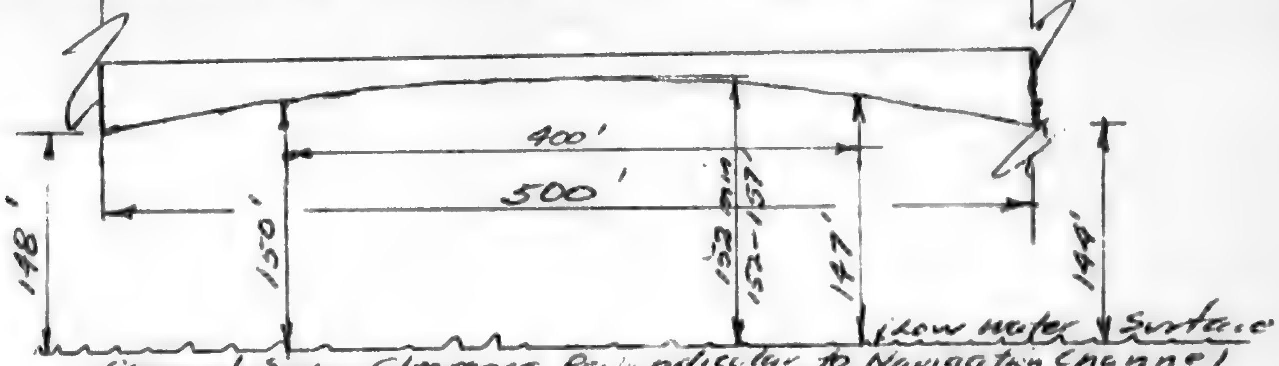
The Coast Guard and the Corp of Engineers supported the pilots 100 percent. Their position appeared inflexible. Mr. Sheilds of the Coast Guard said he will support the marine industry unless they are unreasonable. He has two alternatives with respect to approval of this project. With the existing application he could either determine if it is acceptable or not acceptable or request a new submission outlining a new structure configuration in agreement with the requirements outlined by the Pilots and Towboat Association.

(more)

The Corp of Engineers did not indicate that any permanent relief could be obtained by straightening the channel. This was discussed to some degree but no positive steps were outlined or agreed upon during this meeting for this alteration. There appeared to be some concern about shoals upstream which would prevent such an alteration; however, there was a feeling by some pilots that this might not be a concern.

The Corp of Engineers were quite persistent on whether we could raise the structure in an attempt to maintain the required clearance for river traffic.

Mr. Simpson indicated that approval had been obtained for the maximum height of the structure and the alinement and that no variation in this regard could be considered. He suggested that we might review the main channel length if the navigators would allow flexibility in the depth of the structure. It might be necessary to increase the approach span to maintain a balanced design. This was a concession that the navigators and pilots agreed on. Clearance could be reduced as much as ±6 feet to allow flexibility in the structural design depth. Mr. Edwards and Mr. Merchant requested an opinion from the navigators as to the desired direction of the lengthening. It was agreed by all concerned that the shift in length should be on the south side of the main span with the expectation of possibly eliminating part of the dog leg that now exists in the navigation channel. Tentative main channel configuration as sketched by Mr. Shields is given below:



Channel Span Clearance Perpendicular to Navigation Channel

This configuration was agreed to by Mr. Brown of the Pilots and Mr. Light acting as the committee chairman of the Towboat Association. It appeared that the above was the unanimous acceptance of all pilots and navigators, Corp of Engineers, and Coast Guard people. The State agreed to review the problem and will prepare a new submission to be forwarded through the Public Roads Division office to the Coast Guard for their review and expected approval of the application.

The meeting was adjourned at 3:30.

*See Mr. Simpson's attached summary.
HASchell:gyh

*In summary as Mr. Simpson enumerated:

1. That there was general agreement as to the 500-foot clearance on the main span with freedom at the points of support for the State to design what was considered the most economical structure. The tentative sketch was merely a guide.

2. The State would submit revised application to the Coast Guard.

3. As a direct request to those in attendance, they were invited to raise an adverse comment. None were forthcoming.

Mr. Shields of the Coast Guard indicated that the Coast Guard would have to consider adverse considerations of the Sierra Club and of others. He was advised that a conditional approval subject to a court decision was presupposing the position of the court and that such action as a condition of approval would be unacceptable.

FORM E-30-X (12-67)

# OREGON STATE HIGHWAY DEPARTMENT

INTER-DEPARTMENT CORRESPONDENCE
Portland, Oregon
November 17, 1969

To: Memo to the Files

SUBJECT: East Portland Freeway I-205
Columbia River Bridge
Navigation Clearances

initiated and chaired by Adam Heinuman, Port of Portland

At 1:00 p.m. on November 13 a meeting was held in the Corps of Engineers Conference Room to discuss navigation clearances for the proposed I-205 bridge over the Columbia River. The following were in attendance:

| Name | Organization |
|---|---|
| Kirk Roberts | Shaver Trans. Co. |
| Ed Shuilds | U.S. Coast Guard |
| James Barbouletos | Tidewater Barge Lines |
| Dick Carlen | Pacific Inland Navigation |
| Paul W. Light | Pacific Inland Nav. Co. |
| F. Lyle Ritter | Western Transportation Co. |
| Fred W. Bartel | Corps of Engineers |
| Roy Tokerud | Federal Highway Administration |
| Hugh B. Henry | " " " |
| Ivan D. Merchant | Oregon State Highway Division |
| Tom Edwards | " " " " |
| A. E. Johnson | " " " " |
| Edward L. Hardt | " " " " |
| D. E. Brown | Columbia River Pilots |
| Allen G. Terry | Corps of Engineers |
| B. Hopman | " " |
| A. J. Heineman | The Port of Portland |
| John G. Oliver | Corps of Engineers |
| Dean L. Harshberger | " " |
| H. A. Schell | Bureau of Public Roads |
| R. E. Simpson | " " " |
| F. O. Meyer | Knappton Towboat Co. |
| Sam Geer | Willamette Tug & Barge |
| Don Ray | " " " |
| Robert O. Dodge | R & H, Corps of Engineers |

Mr. Adam Heineman (Port of Portland) opened the meeting by saying that since there were objections from the marine interests to the proposed horizontal clearance of 400 feet for the main channel the interested parties had been brought together to try to get a consensus as to what clearance would be acceptable.

During the course of the meeting the following facts were developed:

> The Towboat interests are objecting to the 400-foot clearance. They feel 500-foot clearance is the practical minimum. They are particularly concerned because the upstream approach channel to the bridge contains several angle points, thus making this approach with large tows very difficult.
>
> The Corps of Engineers has investigated a channel change but do not favor same because of (1) proximity to Washington shore, (2) possibility of rock in the channel if moved northerly, and (3) shoal area to the south of the channel.
>
> The horizontal alignment of the bridge is fixed and not subject to adjustment, including the control on the Washington shore. The flight pattern for Portland Airport has been designed to fit this alignment. The profile controlling the deck has been approved by the FAA after making special studies for automatic flight control equipment. This profile is critical to them and cannot be raised, especially over the Columbia River channel.
>
> The bridge is not yet designed, and it is conceivable that a 500-foot opening (600 ft. span) with 157 ft. vertical clearance could be provided. It is estimated that the extra cost compared to the 400 ft. opening design would be 1.5 million. Since the bridge will be financed with 92% Federal money, the State has no particular objection to the longer, more expensive span, provided that this is in the public's best interest.

Mr. Paul Light (Pacific Inland Navigation Co.) made a statement regarding the hearing held two years ago. He said they felt at that time that 400 ft. clearance was all they could get. If they had known the amount of clearance was negotiable they would have started with a request well above 500 ft. He has maintained for 15 years that 500 ft. is a reasonable minimum for navigation clearance. He pointed out that what is good for navigation in this area which is served by water is also good for all the citizens.

Captain D. E. Brown (Columbia River Pilots) stated that he also felt that a 500 ft. channel clearance is the minimum desirable. He also mentioned he would prefer that the channel adjacent to the bridge be straightened rather than the opening changed to 500 ft.

Mr. Simpson (BPR) and Mr. Edwards (OSHD) both stated that they felt it was the Coast Guard's responsibility to decide, in the public's interest, what the proper clearance ought to be. Ed Sheilds (USCG) replied that he had two choices, (1) the current permit (400 ft. clearance) could be

ch application

[illegible]

processed, or (2) the Highway Department could resubmit its application with a greater clearance shown. He said the permit as it now stands would be submitted with known objections, ~~and he recalled a recent incident~~ where the navigation interests had gotten a permit revoked.

It developed through discussion that if a 500 ft. opening perpendicular to the channel was provided, the vertical clearance could be modified. Mr. Heineman said that 150 ft. vertical clearance was all their studies could justify. The towboat interests would be happy with 70 ft. clearance above high water. Mr. Sheilds sketched a clearance diagram on the board indicating a 500 ft. opening with vertical clearance of 148 ft. and 144 ft. at the north and south limits of this opening, 152 ft. clearance at the center, and 150 ft. and 147 ft. clearance points 200 ft. north and south, respectively, of the center of the opening. He asked if the navigation interests "could live" with this configuration. Capt. Brown, Mr. Light, and Mr. Ritter (Western Transportation Co.) all replied that they could.

Mr. Edwards polled the group to determine the placement of the extra 100 ft. of horizontal clearance. All the navigation people agreed that it should be added to the south end of the 400 ft. opening. Mr. Edwards cautioned the group that design studies would have to be made to determine if the clearances outlined above were feasible and that adjustments in the back spans might have to be made to provide an economical design.

Mr. Simpson said that a new clearance drawing for the permit will be submitted along the lines outlined above. He asked if anyone in the room had any objections to this proposal. There was no reply.

The meeting was adjourned at 3:30 p.m.

A. E. Johnson
Metropolitan Engineer

by

ORIGINAL SIGNED BY EDWARD L. HARDT

Edward L. Hardt
Assistant Metropolitan Engineer

ELM:lh

cc: Tom Edwards
Ivan Merchant

8705

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NOV 1 - 1969
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BRIDGE
COMMITTEE

8

RIVERS & HARBORS CONGRESS

PORTLAND.ORE 97208
503 224-4260

October 30, 1969

District Engineer
Portland District
U. S. Corps of Engineers
P. O. Box 2946
Portland, Oregon 97208

Subject: I-205 Bridge Clearances

Dear Sir:

As the result of discussions with Mr. Shields of the U. S. Coast Guard in Seattle, it has been found that several objections have been received to the proposed clearances for the I-205 bridge as the result of the latest public notice. In discussing the proposed horizontal clearance of 400 feet with the objectors, it is found that the combination of the 400-foot clearance along with the bend in the channel immediately upstream of the bridge, and with added experience of operating the larger tows in recent years has brought about a change in their thinking since the public hearing of May 25, 1967. It is believed that a resolution of this matter would be assisted by meeting with the interested parties in order to discuss the relative merits of dredging a straighter channel upriver from the bridge as against the requested widening to a 500-foot clearance. It appears that the navigators feel that the straightening of the channel would be of more benefit than widening the opening.

It would be very much appreciated if your office could review the shoaling pattern in recent years upstream from the bridge since the indication given prior to the meeting was a gradual sharpening of the bend in the dredged channel.

We would be happy to meet with you and the other parties concerned at your convenience. If there are any questions regarding this matter, please call.

Very truly yours,

A. J. Heineman

A. J. Heineman, Chairman
Bridge Committee

AJH:mt
cc: Bridge Committee
Capt. Lew Russell, Jr.
Capt. Paul Light
Capt. Dennis Brown
Mr. Ed Shields
Mr. Ivan Merchant
Mr. R. H. Tokerud, Federal Highway Admin.

RECEIVED
OREGON STATE HIGHWAY DEPT.
BRIDGE DIVISION
AM OCT 31 1969 PM
7,8,9,10,11,12,1,2,3,4,5,6

RECEIVED
OCT 31 1969
OFFICE OF
STATE HIGHWAY ENGINEER

NOTED
IVAN D. MERCHANT

NOTED
TOM EDWARDS

C. C. [illegible] T. E.

8905

RECEIVED
OCT 30 1969
FOR FILING

October 28, 1969

Department of Fisheries
Stream Improvement & Hydraulics
115 General Administration Bldg.
Olympia, Washington 98501

Attention: Robert Burns
Hydraulics Investigator

Gentlemen:

Re: Columbia River Bridge
East Portland Freeway-I-205
Multnomah & Clark Counties
Bridge No. 9555

In reply to your letter of September 29, 1969, regarding the subject we are attaching 1 copy of your application form and sketch map along with a print showing the proposed alignment and elevation of the subject structure. We submit this information in the application for approval to construct the proposed Columbia River Bridge over the Washington State waters.

If further information is required, please do not hesitate to contact us.

Yours very truly,

Forrest Cooper
State Highway Engineer
By:

R. L. Porter
Deputy State Highway Engineer

TCR:jf

Forrest Cooper
bcc: Tom Edwards
F. B. Klaboe
V. D. Wolfe

STATE OF
**WASHINGTON**
DANIEL J. EVANS
GOVERNOR

DEPARTMENT OF
**FISHERIES**
THOR C. TOLLEFSON
DIRECTOR

ROOM 115, GENERAL ADMINISTRATION BUILDING
OLYMPIA, WASHINGTON 98501

September 29, 1969

Oregon State Department of Highways
State Highway Building
Salem, Oregon 97310

RE: United States Coast Guard Public Notice 69-19 -
Proposed Bridge across Columbia River near
Portland, Oregon

Gentlemen:

This department has been notified by the Coast Guard, by the above referenced notice, of your request for a permit for approval of location and plans for a highway bridge across Columbia River.

This department request more details as to the proposed support structure, approaches, elevation, cross section, etc. Enclosed are application forms to be filled in and returned to the appropriate departments.

We appreciate your cooperation with us and if further information is needed, please do not hesitate to contact us.

Very truly yours,

Robert Burns, Hydraulics Investigator
Stream Improvement & Hydraulics

RB:lj

Encl:

cc: Department of Game
Department of Water Resources
Research-Vancouver Lab

RECEIVED
OREGON STATE HIGHWAY DEPT.
BRIDGE DIVISION
AM OCT 1 1969 PM
7,8,9,10,11,12,1,2,3,4,5,6

To: HYDRAULIC PROJECT APPLICANT:

In order to conserve and to properly maintain the valuable fishery resources of the State of Washington, it has been necessary to enact certain protective legislation. These measures (Chapter 112, Laws of 1949, as amended) are planned primarily to preserve, as far as possible, the natural habitat of both migratory and resident salmon and trout.

The law specifically provides that "in the event any person or government agency desires to construct any form of hydraulic project, or other work that will use, divert, obstruct or utilize any of the waters of the State or materials from the stream beds", shall submit plans of the proposed project to the Department of Fisheries and the Department of Game. Written approval shall be secured from the Director of Fisheries and the Department of Game *before commencing construction or work.*

Two application forms are to be filled out and one copy mailed to each of the following addresses:

DEPARTMENT OF FISHERIES
Stream Improvement & Hydraulics
115 General Administration Building
Olympia, Washington 98501

*AND*

Department of Game
600 North Capitol Way
Olympia, Washington 98501

The map should be as complete as possible and besides showing the exact location of the project, it should also indicate the nature of the work, as has been done on the small map in the lower left hand corner of the page. In many cases the project can be approved on the basis of this form. More detailed plans and specifications will not be required before approval may be granted on any project unless we consider fishery problems complex enough to warrant complete analysis.

The completed forms should be submitted as far in advance as possible in order to insure proper and thorough investigation by a representative of these two Departments. A minimum of 30 days should be allowed for processing application.

RECEIVED
OREGON STATE HIGHWAY DEPT.
BRIDGE DIVISION
AM OCT 1 1969 PM
7,8,9,10,11,12,1,2,3,4,5,6

# APPLICATION FORM TO THE DEPARTMENTS OF FISHERIES AND GAME ON PROPOSED HYDRAULIC PROJECTS

Department of Fisheries
and
Department of Game

Gentlemen:

The following is an application for approval in accordance with State laws. It is agreed that no work will be started on the project described below until a signed approval is received from the two departments.

NAME: Oregon State Highway Department PHONE: (503) 364-2171

ADDRESS: State Highway Building (Street Number or R.F.D.) Salem, Oregon (CITY) 97310 (ZIP CODE)

LOCATION OF WORK: (Quarter Section) Sec. 3 (Section) T. 1 N. (Township) R. 2 E. (Range [E or W])

Clark (County)

ROAD DISTANCE AND DIRECTION FROM NEAREST TOWN: Approximately 5½ miles easterly from Vancouver

STREAM: Columbia River (Name) None (Tributary of)

TYPE OF WORK: Bridge Construction
(Culvert, Channel Change, Drainage, Gravel Operation, Flood or Erosion Control, Road or Bridge Construction, Dredging)

DESCRIPTION OF WORK AND EQUIPMENT TO BE USED: To construct a bridge over the Columbia River on the proposed Interstate Highway I-205 alignment. Barges, cranes, excavating & pile driving equipment and other equipment necessary to the construction of bridge piers and superstructure.

PROPOSED STARTING DATE: August, 1971 FINISHING DATE: July, 1973

PARTICIPATING ORGANIZATION (if any) Washington State Div. of Hwys., B.P.R.

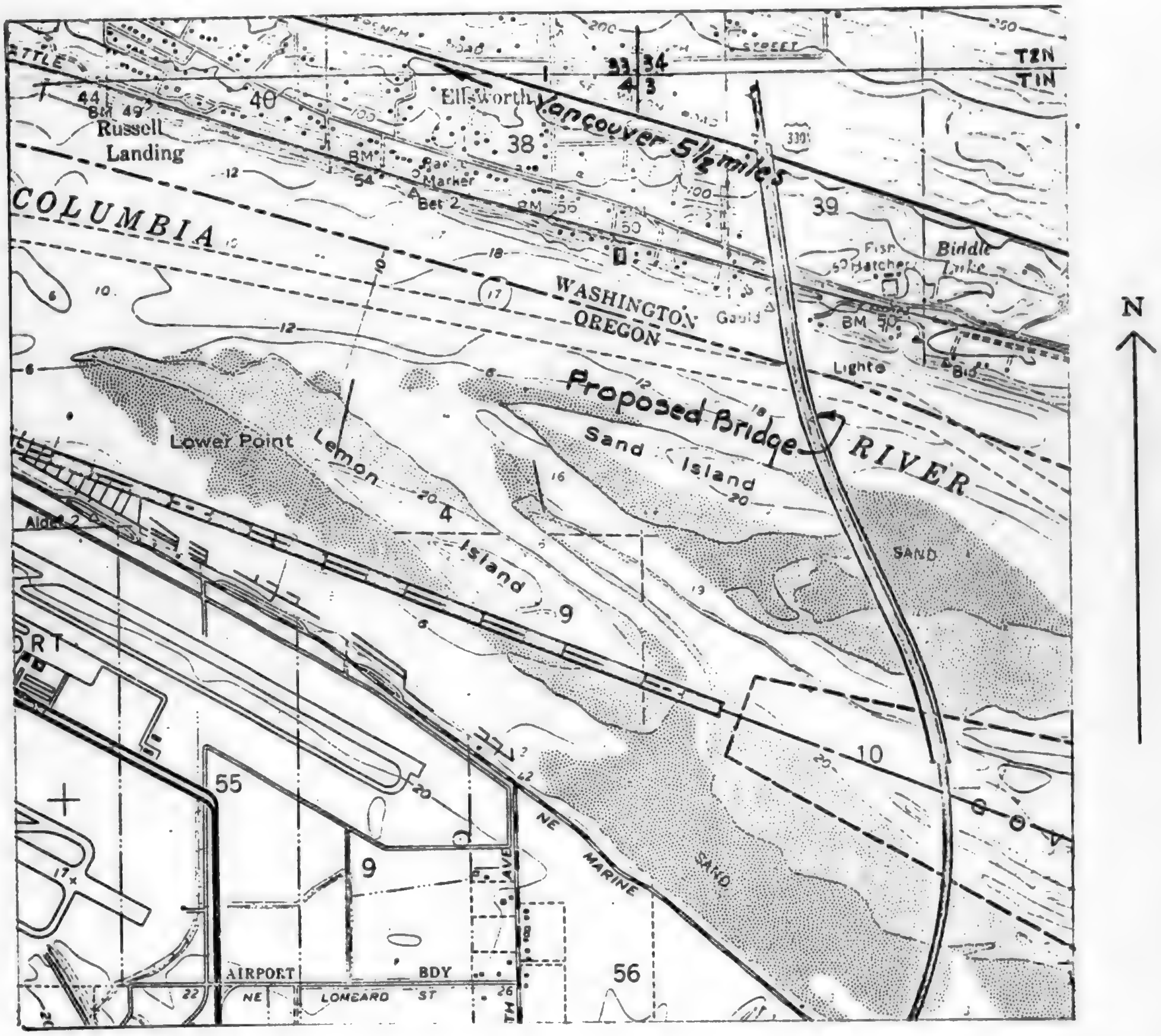
DATE: OCT 29 1969 SIGNATURE: ORIGINAL SIGNED R. L. PORTER

NOTE: Any additional information may be placed on the back of this sheet. If necessary more complete plans and specifications will be requested before granting final approval.

(PLEASE COMPLETE ATTACHED MAP)

Sec. 3, Township 1 North, Range 2 (E) ~~or (W)~~

## SKETCH MAP


T2N
T1N
33 34
4 3
Ellsworth
Vancouver 5½ miles
Russell Landing
40
38
39
330
COLUMBIA
WASHINGTON
OREGON
Fish Hatchery
Biddle Lake
Proposed Bridge
RIVER
Lower Point
Lemon Island
Sand Island
SAND
4
9
10
55
9
56
NE MARINE
AIRPORT BDY
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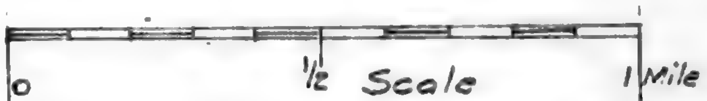
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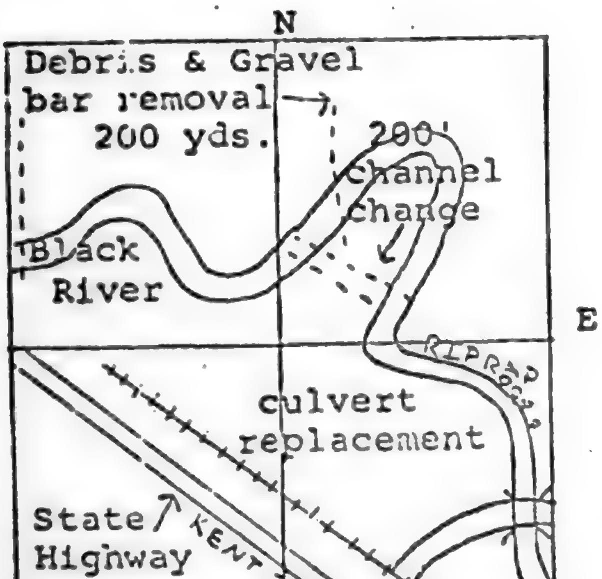
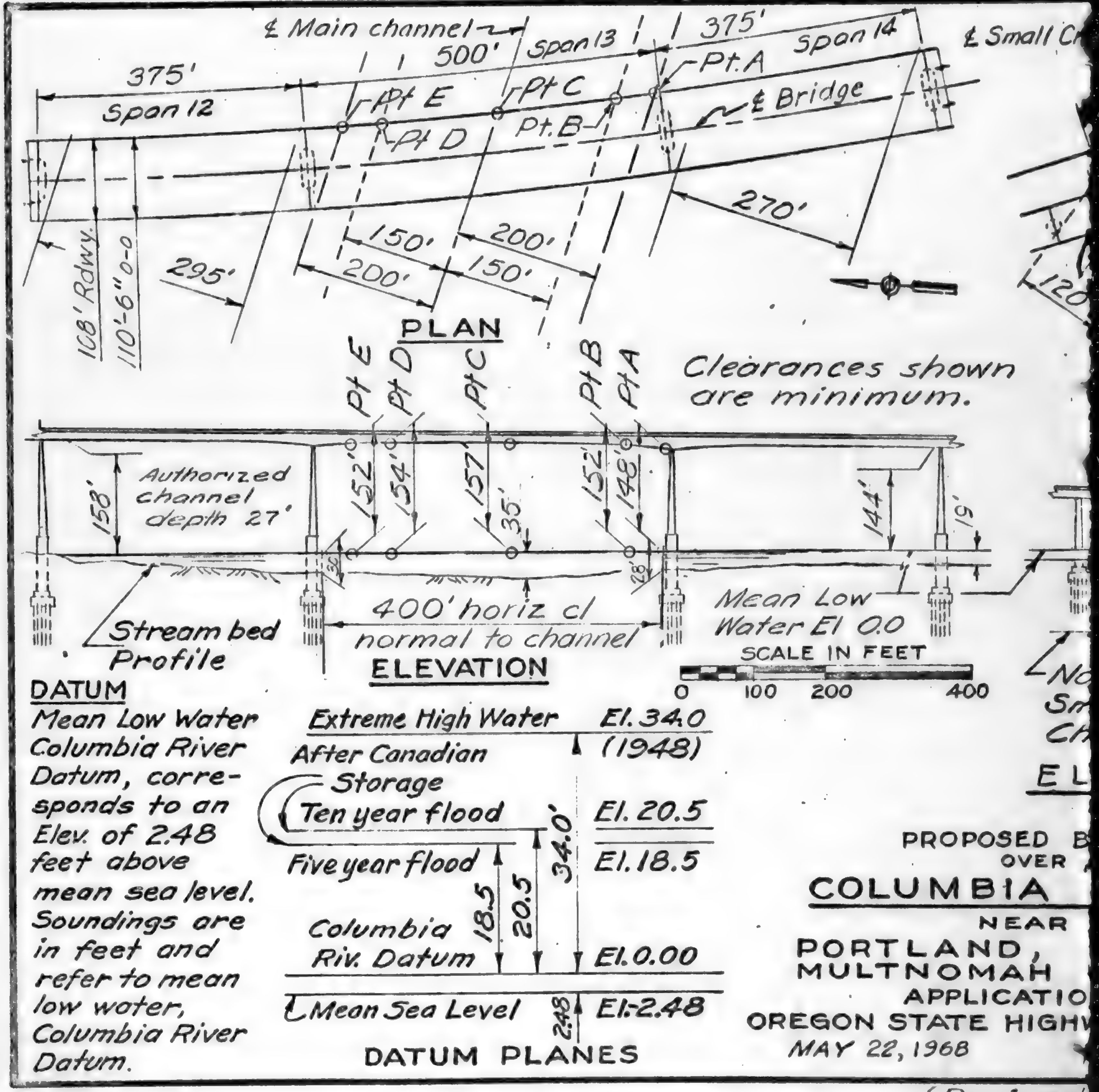
½
Scale
1 Mile


N
E
Debris & Gravel bar removal 200 yds.
200' channel change
Black River
RIPRAP
culvert replacement
State Highway
KENT 2 MI
R.R.
Scale-2" to 1 mi.

SAMPLE MAP

The sample map to the left indicates the *type* of information which should be provided. Any scale may be used and the space does not necessarily have to represent a Section. Please indicate clearly all pertinent data on the space provided above for a sketch map—type of project, area of stream involved, landmarks, distance and direction to nearest town, etc.


℄ Main channel
500'
Span 13
375'
Span 14
℄ Small Ch
375'
Span 12
Pt E
Pt C
Pt A
Pt D
Pt B
℄ Bridge
108' Rdwy.
110'-6" o-o
295'
150'
200'
200'
150'
270'
120
PLAN
Pt E
Pt D
Pt C
Pt B
Pt A
Clearances shown are minimum.
158'
Authorized channel depth 27'
152'
154'
157'
35'
152'
148'
144'
19'
36'
28'
400' horiz cl normal to channel
Stream bed Profile
Mean Low Water El 0.0
SCALE IN FEET
0
100
200
400
ELEVATION
No
Sm
Ch
EL
Extreme High Water
El. 34.0
(1948)
After Canadian Storage
Ten year flood
El. 20.5
34.0'
Five year flood
El. 18.5
18.5
20.5
Columbia Riv. Datum
El. 0.00
Mean Sea Level
2.48
El. -2.48
DATUM PLANES

**DATUM**
Mean Low Water Columbia River Datum, corresponds to an Elev. of 2.48 feet above mean sea level. Soundings are in feet and refer to mean low water, Columbia River Datum.

PROPOSED B
OVER
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NEAR
PORTLAND,
MULTNOMAH
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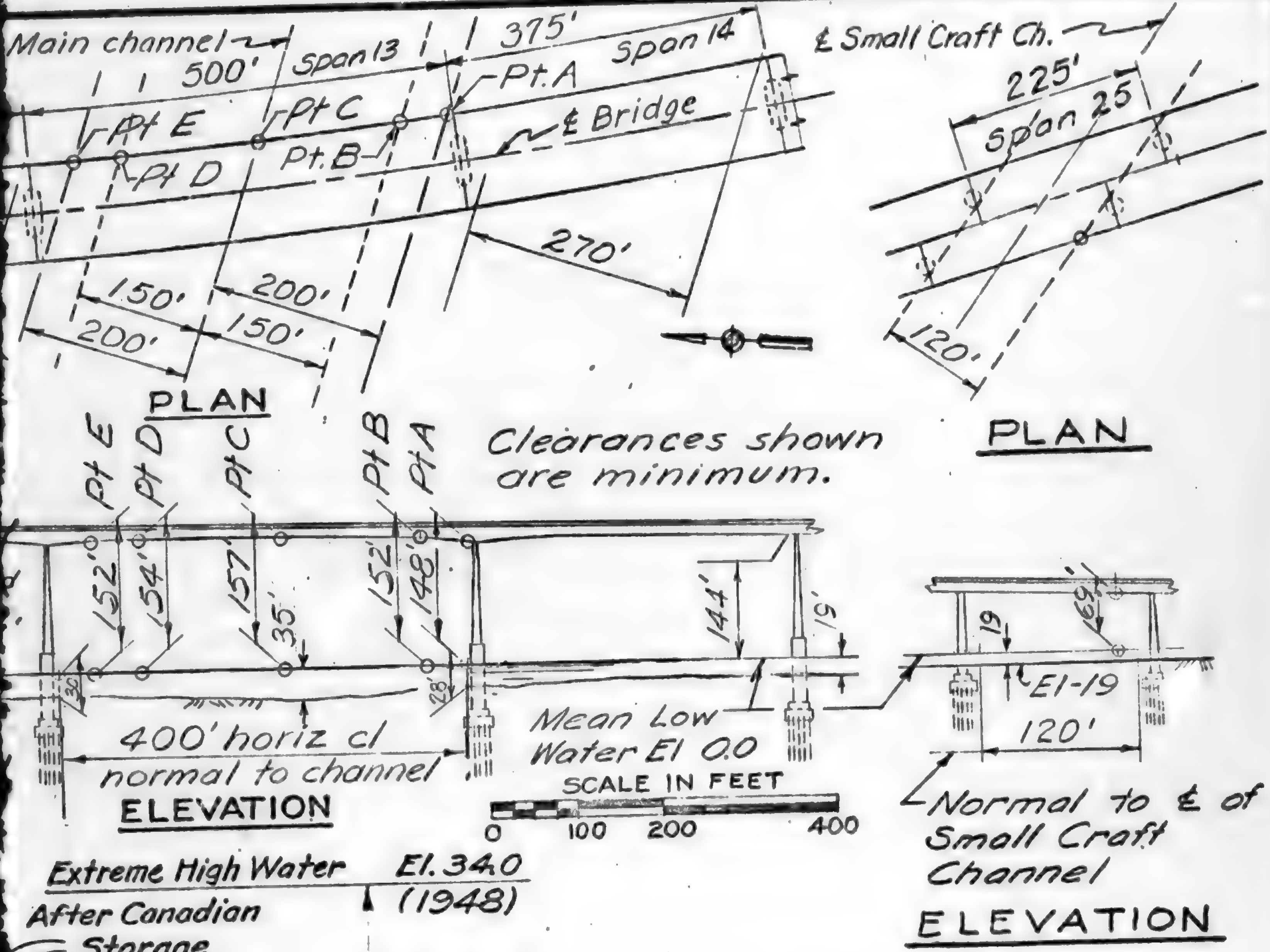
OREGON STATE HIGHW
MAY 22, 1968

(Revised


Main channel
500'
Span 13
375'
Span 14
Pt. A
Pt E
Pt C
Pt D
Pt. B
℄ Bridge
270'
150'
200'
200'
150'
PLAN
℄ Small Craft Ch.
225'
Span 25
120'
PLAN
Clearances shown are minimum.
Pt E
Pt D
Pt C
Pt B
Pt A
152'
154'
157'
35'
152'
148'
144'
19'
30'
28'
400' horiz cl normal to channel
ELEVATION
Mean Low Water El 0.0
SCALE IN FEET
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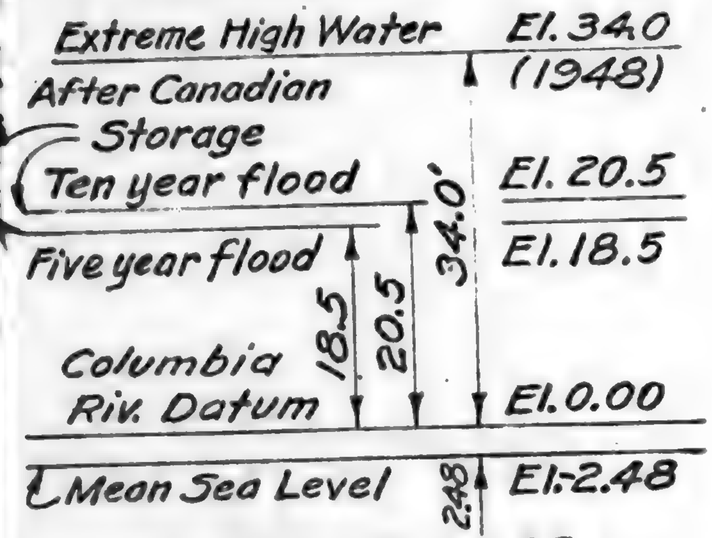
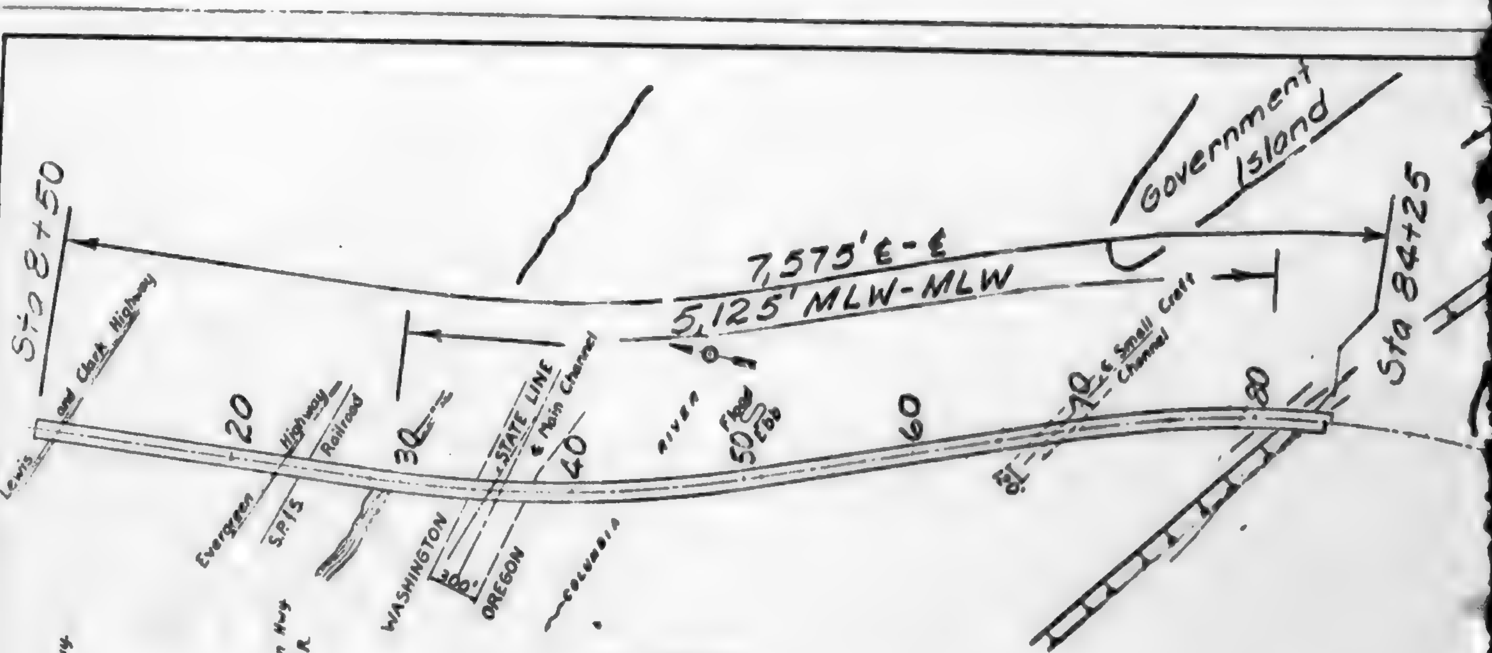
19
El-19
120'
Normal to ℄ of Small Craft Channel
ELEVATION


Extreme High Water
El. 34.0 (1948)
After Canadian Storage
Ten year flood
El. 20.5
Five year flood
El. 18.5
34.0'
20.5
18.5
Columbia Riv. Datum
El. 0.00
℄ Mean Sea Level
2.48
El. -2.48

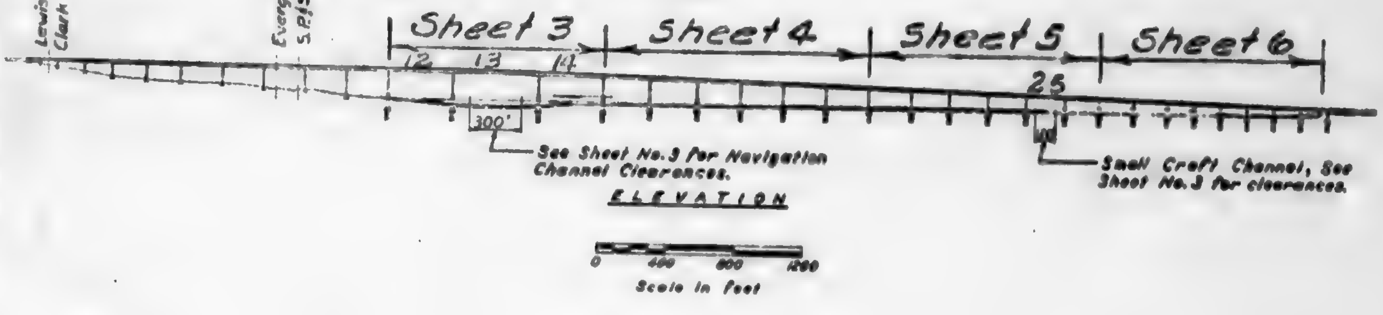
DATUM PLANES

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY COMMISSION
MAY 22, 1968
SHEET 3 OF 6

(Revised Line) Feb 14, 1969


Sta 8+50
Sta 84+25
7,575' ℄-℄
5,125' MLW-MLW
Government Island
Lewis and Clark Highway
Evergreen Highway
S.P.&S.
Railroad
WASHINGTON
STATE LINE
℄ Main Channel
OREGON
300'
COLUMBIA
RIVER
Flood
Ebb
℄ Small Craft Channel
20
30
40
50
60
70
80

PLAN


Lewis & Clark Hwy.
Evergreen Hwy
S.P.&S. R.R.
Sheet 3
Sheet 4
Sheet 5
Sheet 6
12
13
14
25
300'
See Sheet No. 3 for Navigation Channel Clearances.
Small Craft Channel, See Sheet No. 3 for clearances.
0
400
800
1200
Scale in Feet

ELEVATION

Note:
See sheets 3, 4, 5
and 6 for all horizontal
and vertical clearances
in water spans.

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MAY 22, 19

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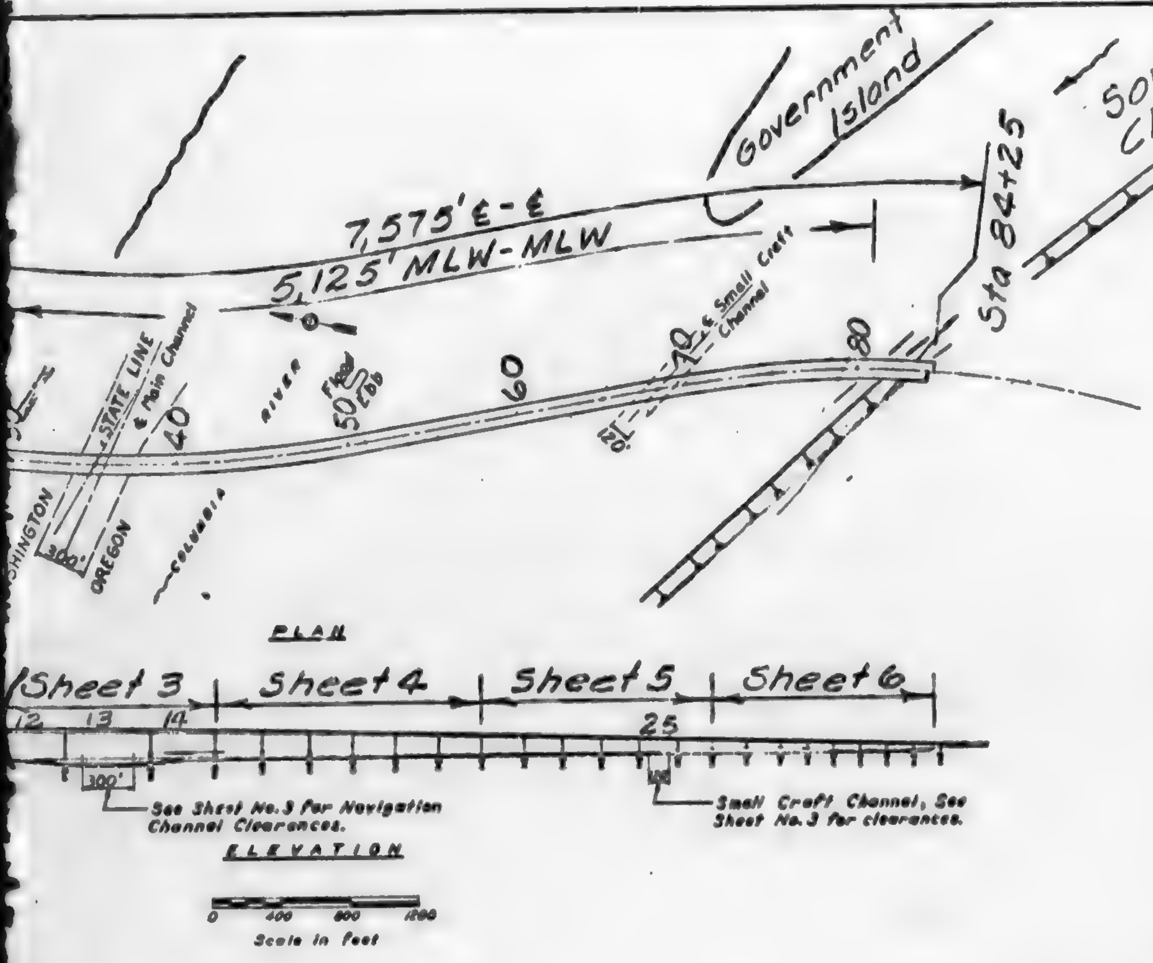

Government Island
South Channel
Lagoon
Sta 84+25
7,575' ℄-℄
5,125' MLW-MLW
STATE LINE
℄ Main Channel
WASHINGTON
OREGON
300'
COLUMBIA
RIVER
Flood
50
Ebb
40
60
80
℄ Small Craft Channel
PLAN
Sheet 3
Sheet 4
Sheet 5
Sheet 6
12
13
14
25
300'
See Sheet No.3 for Navigation Channel Clearances.
Small Craft Channel, See Sheet No.3 for clearances.
ELEVATION
0
400
800
1200
Scale in feet

ets 3, 4, 5
all horizontal
l clearances
pans.

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY COMMISSION
MAY 22, 1968 SHEET 2 OF 6

(Revised Line)

Revised Feb 14, 1969

9905

RECEIVED
OCT 30 1969

FOR FILING

October 28, 1969

Department of Game
600 North Capitol Way
Olympia, Washington 98501

Gentlemen:

Re: Columbia River Bridge
East Portland Freeway - I-205
Multnomah & Clark Counties
Bridge No. 9555

In reply to a letter from the Department of Fisheries dated September 29, 1969, regarding the subject we are attaching 1 copy of the application form and sketch map along with a print showing the proposed alignment and elevation of the subject structure. We submit this information in the application for approval to construct the proposed Columbia River Bridge over the Washington State waters.

If further information is required, please do not hesitate to contact us.

Yours very truly,

Forrest Cooper
State Highway Engineer
By:

R. L. Porter
Deputy State Highway Engineer

TCR:jf Forrest Cooper
bc: Tom Edwards
F. B. Klaboe
V. D. Wolfe

NOTED
IVAN D. MERCHANT

# APPLICATION FORM TO THE DEPARTMENTS OF FISHERIES AND GAME ON PROPOSED HYDRAULIC PROJECTS

Department of Fisheries
and
Department of Game

Gentlemen:

The following is an application for approval in accordance with State laws. It is agreed that no work will be started on the project described below until a signed approval is received from the two departments.

NAME: Oregon State Highway Department PHONE: (503) 364-2171

ADDRESS: State Highway Building (Street Number or R.F.D.) Salem, Oregon (CITY) 97310 (ZIP CODE)

LOCATION OF WORK: (Quarter Section) Sec. 3 (Section) T. 1 N. (Township) R. 2 E. (Range [E or W])

Clark (County)

ROAD DISTANCE AND DIRECTION FROM NEAREST TOWN: Approximately $5\frac{1}{2}$ miles easterly from Vancouver

STREAM: Columbia River (Name) None (Tributary of)

TYPE OF WORK: Bridge Construction
(Culvert, Channel Change, Drainage, Gravel Operation, Flood or Erosion Control, Road or Bridge Construction, Dredging)

DESCRIPTION OF WORK AND EQUIPMENT TO BE USED: To construct a bridge over the Columbia River on the proposed Interstate Highway I-205 alignment. Barges, cranes, excavating & pile driving equipment and other equipment necessary to the construction of bridge piers and superstructure.

PROPOSED STARTING DATE: August, 1971 FINISHING DATE: July, 1973

PARTICIPATING ORGANIZATION (if any) Washington State Div. of Hwys., B.P.R.

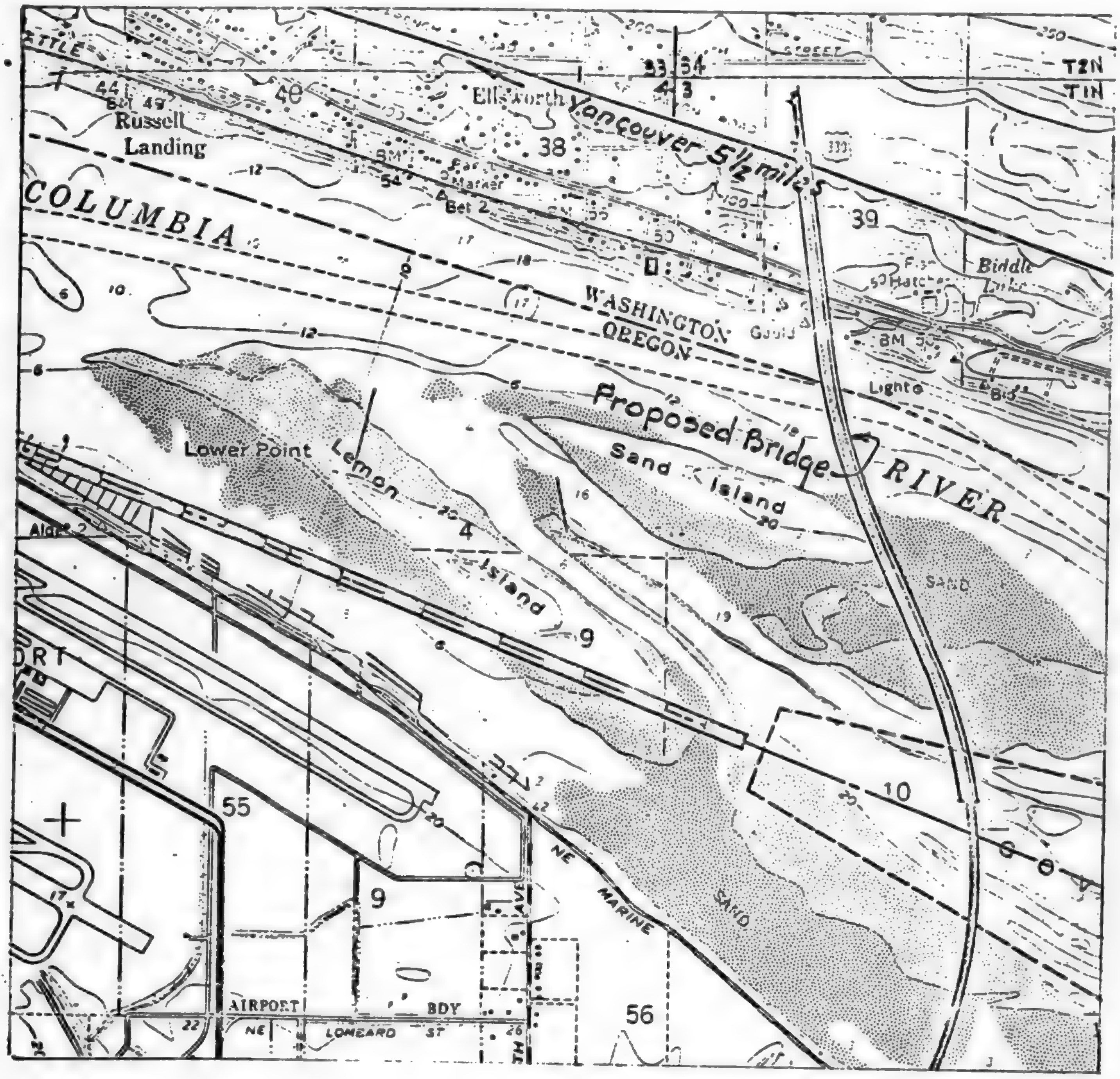
DATE: OCT 29 1969 SIGNATURE: ORIGINAL SIGNED R. L. PORTER

NOTE: Any additional information may be placed on the back of this sheet. If necessary more complete plans and specifications will be requested before granting final approval.

(PLEASE COMPLETE ATTACHED MAP)

Sec. 3, Township 1 North, Range 2 (E) ~~or (W)~~

## SKETCH MAP


Vancouver 5½ miles
Proposed Bridge
COLUMBIA
RIVER
WASHINGTON
OREGON
Russell Landing
Ellsworth
Lower Point
Lemon Island
Sand Island
Biddle Lake
Fish Hatchery
Gould
SAND
NE MARINE
AIRPORT BDY
NE LOMBARD ST
T2N
T1N
38
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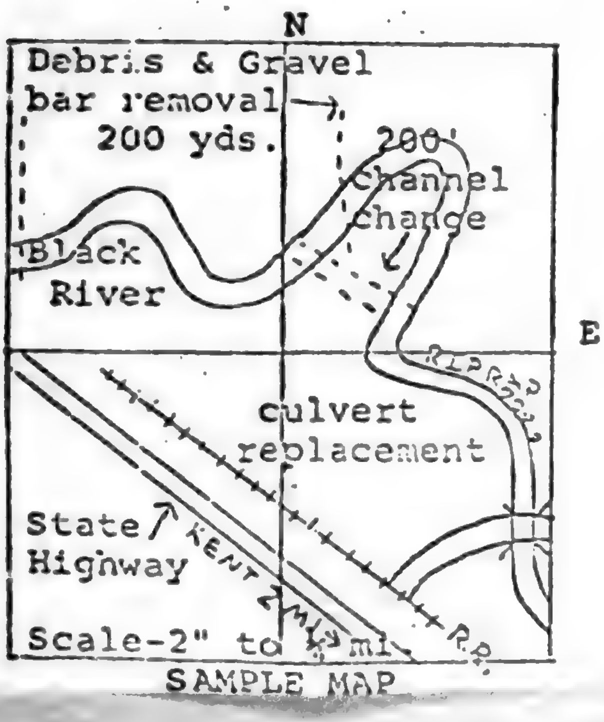
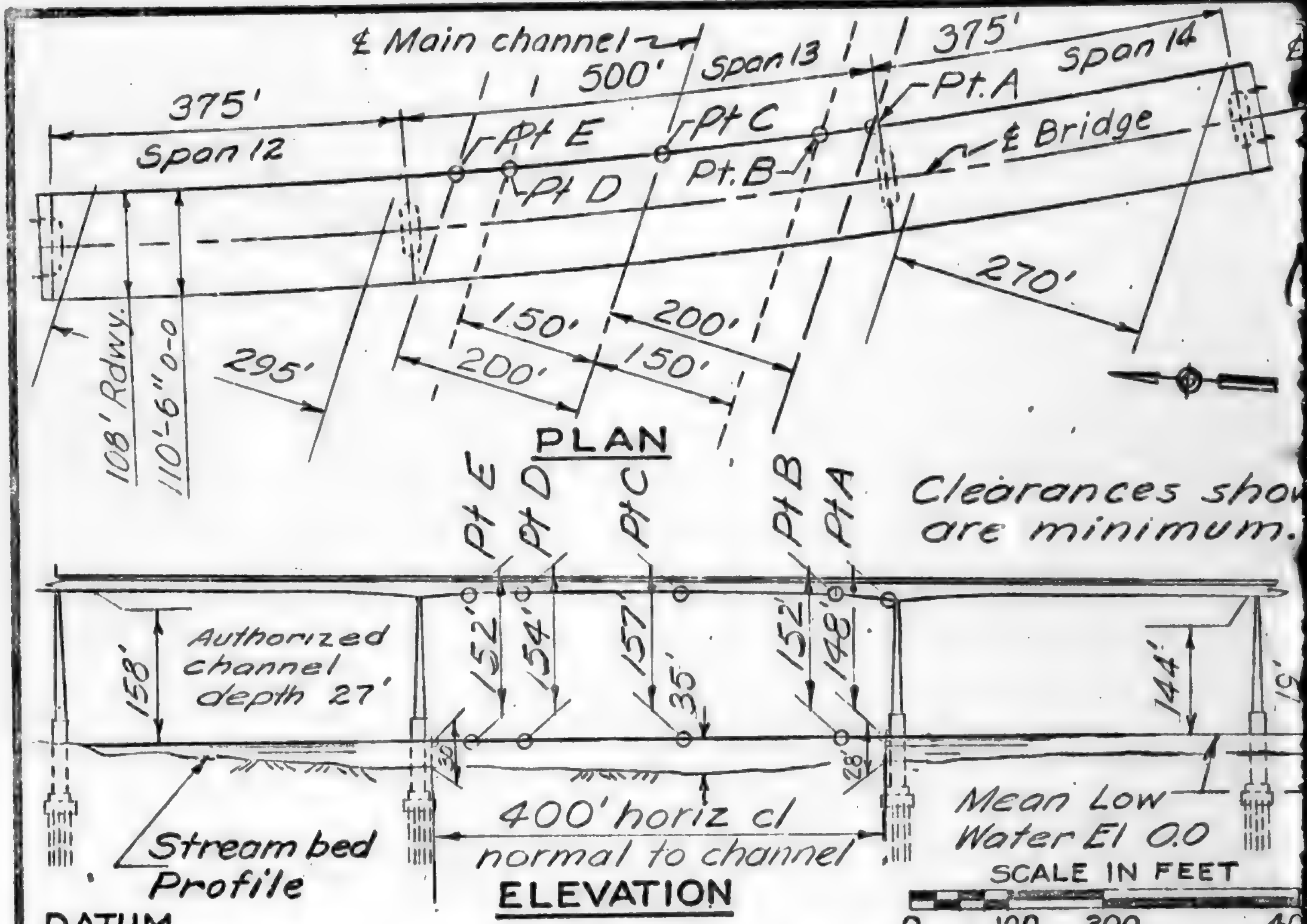
9
10
4
N

0 ½ Scale 1 Mile


N
E
Debris & Gravel bar removal
200 yds.
200' Channel change
Black River
RIPRAP
culvert replacement
State Highway
KENT 2 Mi.
R.R.
Scale-2" to 1 mi.

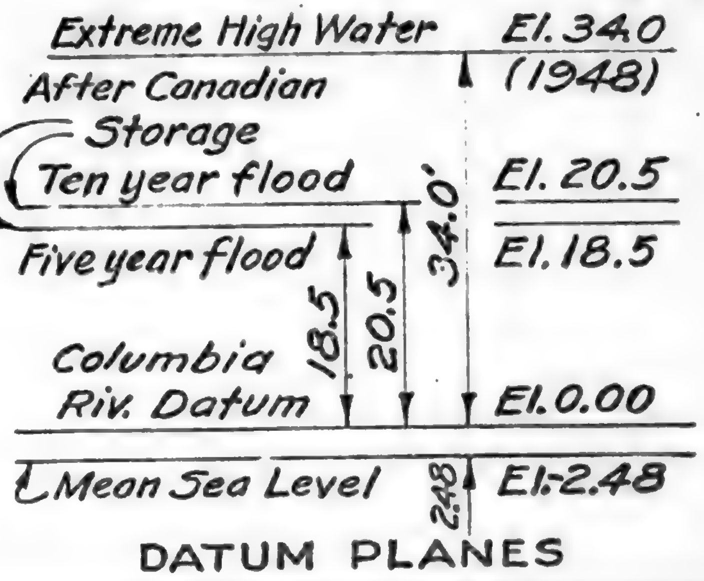
SAMPLE MAP

The sample map to the left indicates the *type* of information which should be provided. Any scale may be used and the space does not necessarily have to represent a Section. Please indicate clearly all pertinent data on the space provided above for a sketch map—type of project, area of stream involved, landmarks, distance and direction to nearest town, etc.


℄ Main channel
500'
Span 13
375'
Span 14
375'
Span 12
Pt E
Pt C
Pt A
Pt D
Pt. B
℄ Bridge
108' Rdwy.
110'-6" o-o
150'
200'
200'
150'
295'
270'
PLAN
Pt E
Pt D
Pt C
Pt B
Pt A
Clearances show
are minimum.
158'
Authorized channel depth 27'
152'
154'
157'
35'
152'
148'
144'
30'
28'
400' horiz cl normal to channel
Stream bed Profile
Mean Low Water El 0.0
ELEVATION
SCALE IN FEET
0
100
200
40

**DATUM**

Mean Low Water Columbia River Datum, corresponds to an Elev. of 2.48 feet above mean sea level. Soundings are in feet and refer to mean low water, Columbia River Datum.


Extreme High Water
El. 34.0
After Canadian Storage
(1948)
Ten year flood
El. 20.5
Five year flood
El. 18.5
34.0'
20.5
18.5
Columbia Riv. Datum
El. 0.00
Mean Sea Level
El.-2.48
2.48

DATUM PLANES

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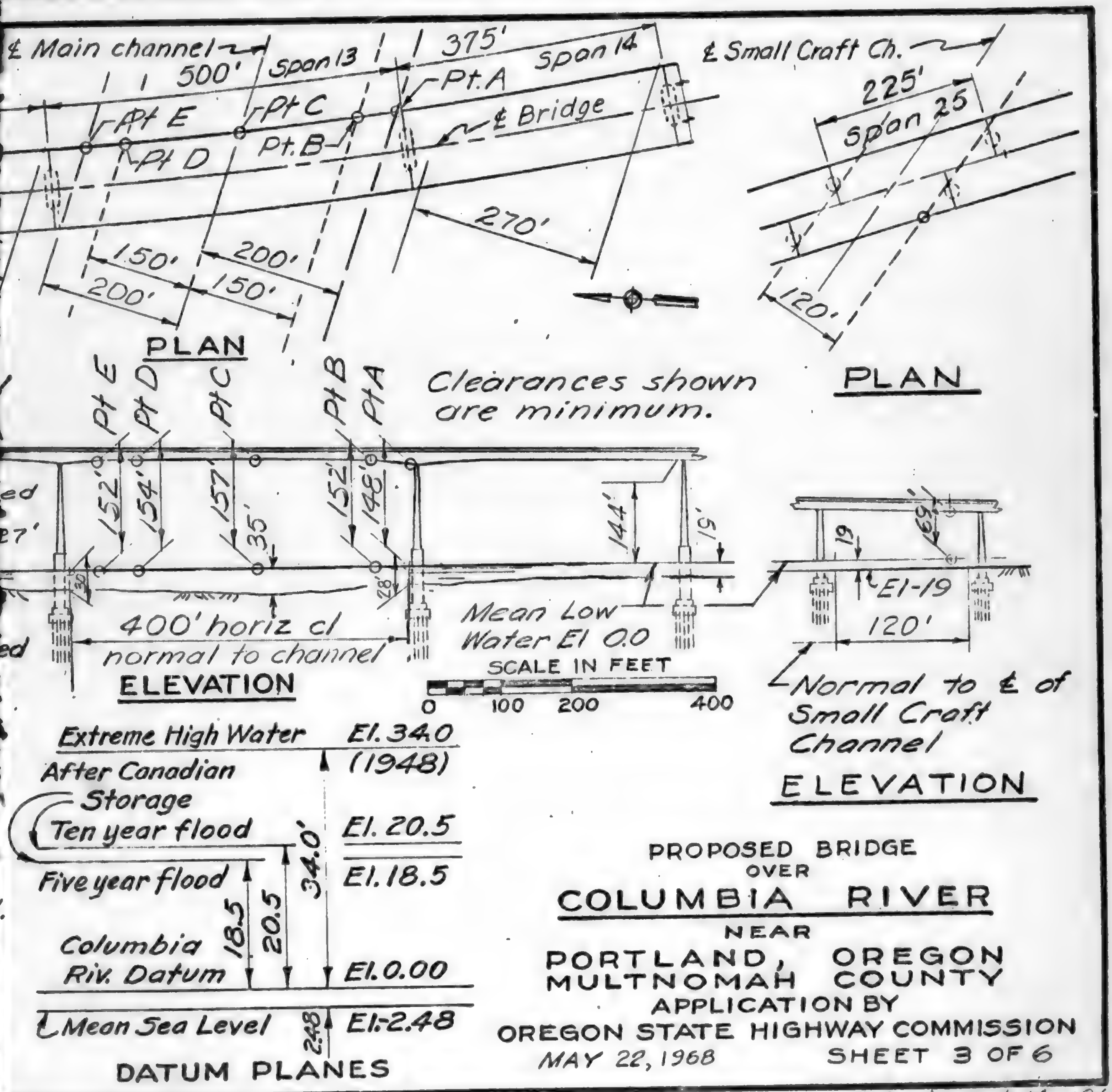
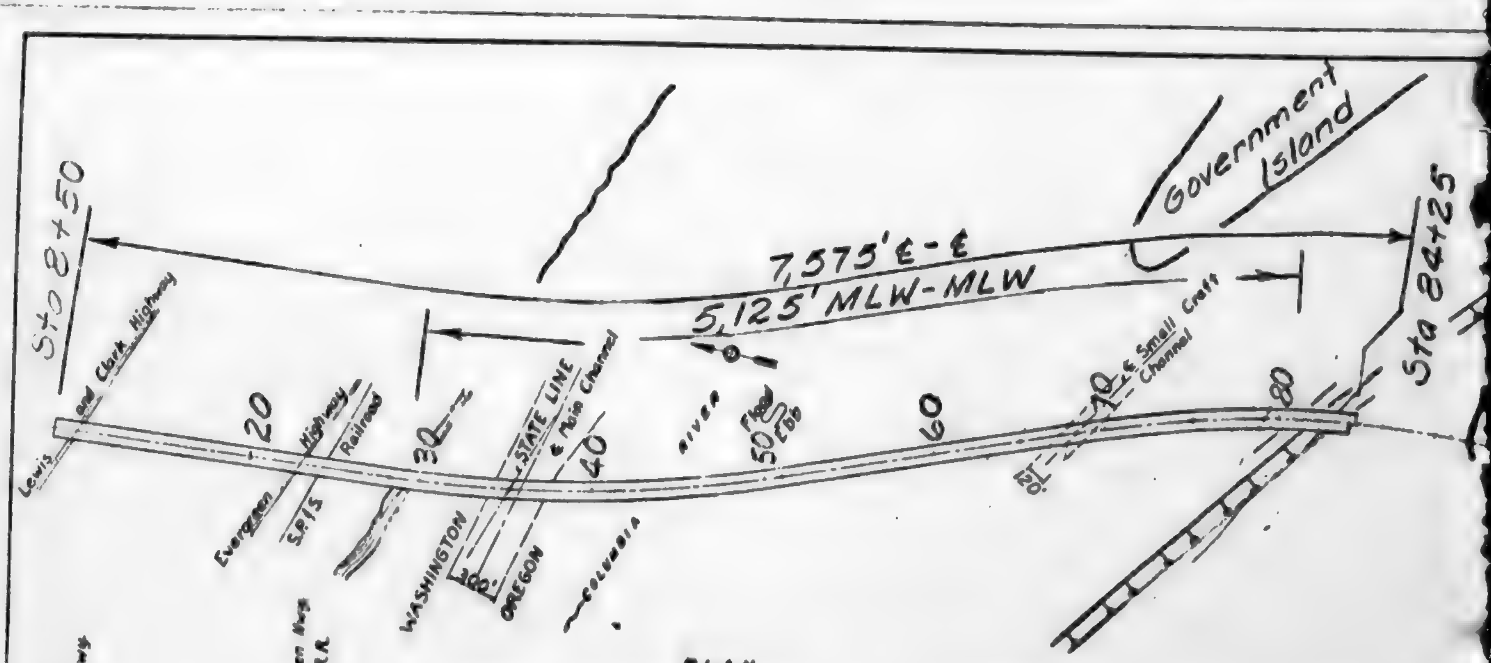
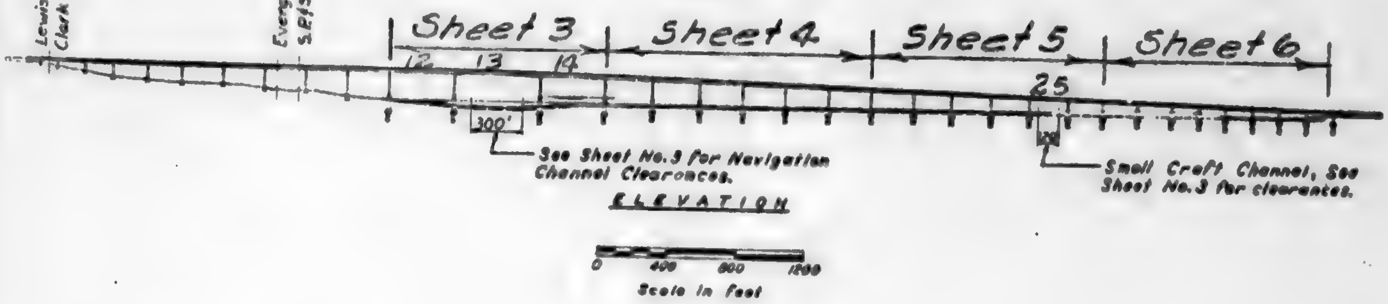

℄ Main channel
500'
Span 13
375'
Span 14
Pt. A
Pt E
Pt C
℄ Bridge
Pt D
Pt. B
150'
200'
200'
150'
270'
PLAN
℄ Small Craft Ch.
225'
Span 25
120'
PLAN
Clearances shown are minimum.
Pt E
Pt D
Pt C
Pt B
Pt A
152'
154'
157'
35'
152'
148'
144'
15'
30'
28'
ed
27'
ed
400' horiz cl normal to channel
ELEVATION
Mean Low Water El 0.0
SCALE IN FEET
0
100
200
400
19
69'
El-19
120'
Normal to ℄ of Small Craft Channel
ELEVATION
Extreme High Water
El. 34.0
After Canadian Storage
(1948)
Ten year flood
El. 20.5
Five year flood
El. 18.5
34.0'
20.5
18.5
Columbia Riv. Datum
El. 0.00
Mean Sea Level
2.48
El. -2.48
DATUM PLANES

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY COMMISSION
MAY 22, 1968
SHEET 3 OF 6

(Revised Line) Feb 14, 1969


Sta 8+50
7,575' ℄-℄
5,125' MLW-MLW
Government Island
Sta 84+25
Lewis and Clark Highway
20
Evergreen Highway
S.P.&S. Railroad
30
WASHINGTON
STATE LINE
℄ Main Channel
300'
OREGON
40
COLUMBIA
RIVER
Flood
Ebb
50
60
70
℄ Small Craft Channel
80

PLAN


Lewis & Clark Hwy
Evergreen Hwy
S.P.&S. R.R.
Sheet 3
Sheet 4
Sheet 5
Sheet 6
12
13
14
25
300'
See Sheet No. 3 for Navigation Channel Clearances.
Small Craft Channel, See Sheet No. 3 for clearances.
0
400
800
1200
Scale in Feet

ELEVATION

Note:
See sheets 3, 4, 5
and 6 for all horizontal
and vertical clearances
in water spans.

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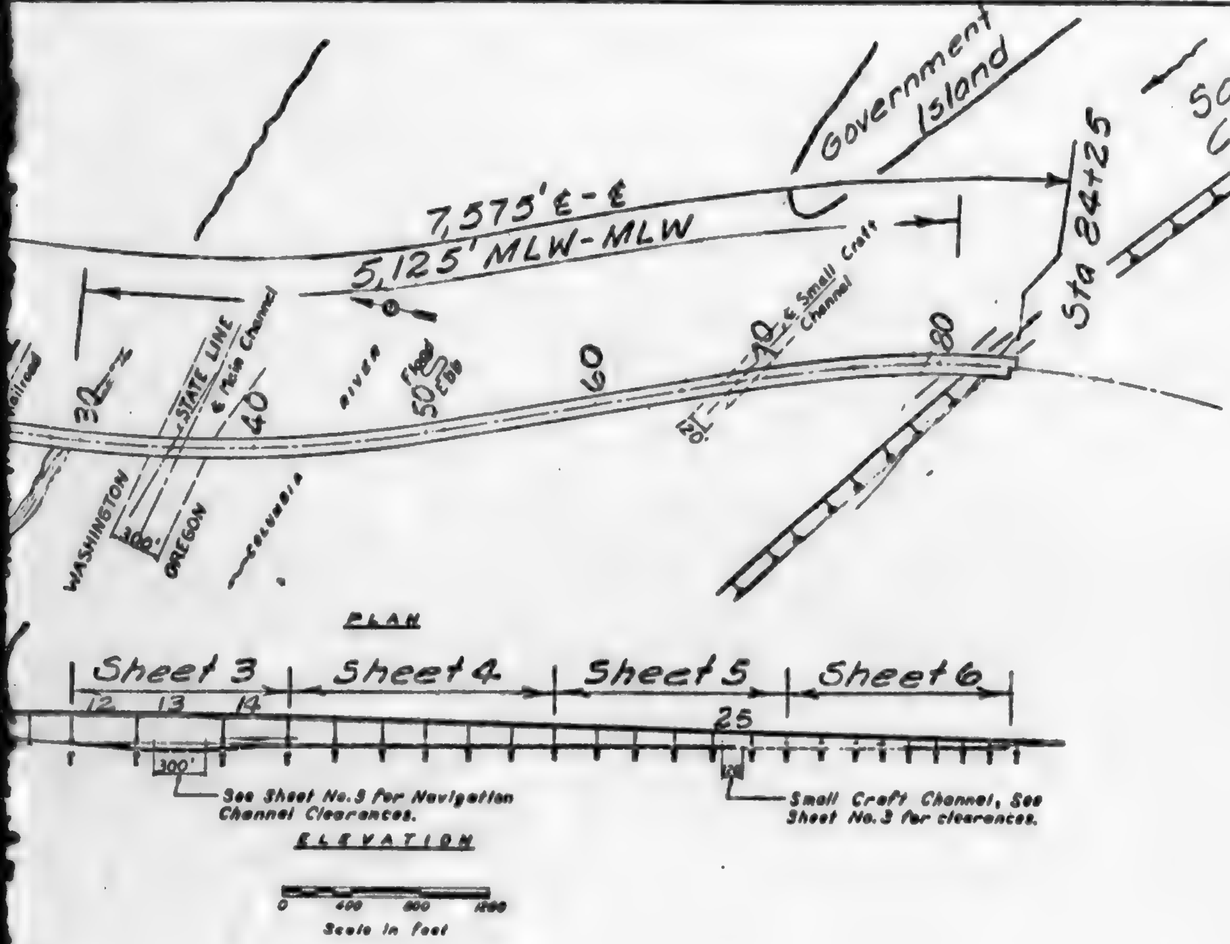
Government Island
South Channel
Lagoon
7,575' ℄-℄
5,125' MLW-MLW
Sta 84+25
℄ Small Craft Channel
80
60
Flood
Ebb
50
RIVER
COLUMBIA
40
30
STATE LINE
℄ Main Channel
WASHINGTON
OREGON
300'
PLAN
Sheet 3
Sheet 4
Sheet 5
Sheet 6
12
13
14
25
300'
See Sheet No. 3 for Navigation Channel Clearances.
Small Craft Channel, See Sheet No. 3 for clearances.
ELEVATION
0
400
800
1200
Scale in feet

heets 3, 4, 5
or all horizontal
ical clearances
spans.

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY COMMISSION
MAY 22, 1968 SHEET 2 OF 6

(Revised Line)

Revised Feb 14, 1969

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OCT 17 1969

FOR FILING

Salem, Oregon
October 16, 1969

Mr. D. J. Barbee
Design Engineer

Mr. Ivan Merchant
Bridge Engineer

I have discussed with you the alignment of the I-205 bridge crossing the main channel area of the Columbia River. Final decision has been taken as follows:

1. Use the existing tangents shown on the map.

2. Use a 30 minute curve in lieu of the 45 minute curve shown.

3. The structure will not be supered.

4. This has not been cleared with the Bureau of Public Roads but shall be the line shown on the plans for the amended Coast Guard application.

5. The Coast Guard application shall show two separate structures, 72 feet from center to center.

Tom Edwards
Assistant State Highway Engineer

TE:ja

cc Forrest Cooper
R. L. Porter
F. B. Klaboe
Victor D. Wolfe

8905

[illegible] file
all material

FORM E-30 80M 10-65

# OREGON STATE HIGHWAY DEPARTMENT

INTER-DEPARTMENT CORRESPONDENCE

October 13, 1969

SUBJECT:

REFERRED TO
"Cooper"
BY DEPUTY STATE HIGHWAY ENGINEER

To: R. L. Porter
Deputy State Highway Engineer

There is attached a chronology of events pertaining to the I-205 structure across the Columbia River in the vicinity of Portland International Airport.

Initial contact was made on September 16, 1966, but in my opinion nothing of moment occurs prior to July 5, 1968. This is the first correspondence in our files pertaining to the Department of Interior's interest in the bridge and expansion of Portland International Airport.

The letters of importance are attached; however, the following chronology will tell you the subject matter in one or two sentences. I think that Mr. Cooper can review the chronology and make his own determination as to which letters he might wish to review in their entirety prior to his upcoming discussion of the subject.

| | |
|---|---|
| July 5, 1968 | U. S. Department of Interior to Coast Guard - Department of Interior's stand on application. |
| July 12, 1968 | Coast Guard to Department - Results of public hearing. |
| August 1, 1968 | Department to Coast Guard - Department acknowledges receipt of letter of July 12. States position on Port of Portland application to Corps for river channel revision. |
| November 22, 1968 | Department to Coast Guard - requests developments concerning issue of permit. |

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FORREST COOPER

| | |
|---|---|
| November 25, 1968 | Coast Guard to Department - Coast Guard reply to inquiry of November 22. |
| December 26, 1968 | Department to Coast Guard - reply to Coast Guard letter of November 25. Outlines Department's position on many objections filed at public hearing. |
| January 2, 1969 | Coast Guard to Department - holding application until Port dredging approved. |
| January 14, 1969 | Coast Guard to Department - submits drawing received from Port of Portland showing proposed expansion of International Airport. Requests changes in permit drawings. |
| January 15, 1969 | Department to U. S. Department of Interior - Department's position on objection made by Department of Interior. |
| February 6, 1969 | U. S. Department of Interior to Department - reply to Department letter of January 15. Department of Interior withdrawing objections. |
| February 14, 1969 | F. A. A. Public Notice - determination of air space use. |
| February 17, 1969 | Department to Coast Guard - comments on U. S. Department of Interior's approval of location. |
| February 27, 1969 | Department to Coast Guard - returning revised permit drawings. |
| April 18, 1969 | Findings by F. A. A. after public hearing. |

I am sure that you would wish to remind Mr. Cooper that while the Bureau has given corridor approval of I-205, Mr. Simpson advised verbally that there would be no hardship right-of-way cases approved northerly of Sandy Boulevard, notwithstanding the letter of March 4, 1969 over his signature, subject, Oregon I-205, Status of Authorizations and Approvals, copy attached.

Maps are attached showing proposed airport expansion, dredging for relocation of south channel, and filling existing south channel.

Victor D Wolfe
Victor D. Wolfe
Administrative Assistant

VDW:mc
Att.

8905

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NOV 5 - 1969
FOR FILING

# OREGON STATE HIGHWAY DEPARTMENT

INTER-DEPARTMENT CORRESPONDENCE

Portland, Oregon 97213
October 1, 1969

SUBJECT: Portland International Airport
East Portland Freeway
Prefix: 626-1909

To: Mr. F. B. Klaboe
Asst. State Highway Engineer
State Highway Building
Salem

NOTED
F. B. KLABOE

A meeting was held in the Port of Portland's conference room on September 26, 1969. Representatives of the Port of Portland explained the status planning for the expansion of the Portland International Airport.

The Port is presently negotiating leases with the airlines, buying land for the airport expansion and making engineering studies. They are moving into the engineering phases as rapidly as possible with the first construction possibly one year away. They plan several construction stages so scheduling will be critical, especially as it relates to the relocation of the north and south runways.

The Port of Portland's present schedule of events are as follows:

(1) Move the present military facilities.

(2) Contract Phase No. 1 additions to the existing terminal building.

(3) Fill area vacated by military and stockpile additional material for south runway possibly this winter.

(4) Spring, 1971, dredge channel on Government Island and stockpile material. Contract completed spring, 1972.

(5) Fill area north of Marine Drive, by end 1971 for highway embankment.

(6) Highway embankment Marine Drive to Columbia Boulevard complete in 1972.

(7) Construct airport access road after the existing north runway is closed.

(8) Contract additions to the terminal building as required to serve the airlines.

(9) Present bar charts indicate major construction item completed by 1975.

orig w/enc. to Barbee —
10-6-69 Pl discuss

NOTED
F. B. KLABOE

It will be necessary for the Highway Department to cooperate with the Port in scheduling the following items:

(1) Purchase right of way for the I-205 Freeway in time to receive the embankment material from one of the dredging contracts.

(2) Pay for dredged material embankment between Columbia Boulevard and Marine Drive and between Marine Drive and the Columbia River structure.

(3) Design and construct an Interchange between I-205 and Airport Way just south of the present Marine Drive. The Port would like a high-speed, high-capacity interchange.

(4) Enter into an agreement for the transfer of the land required by the State for the I-205 Freeway. The land in the present south channel presently belongs to the State Land Board. How the Department will acquire title to this property needs some study.

Other related information.

(1) A law suit is pending to block expansion of the airport into Columbia River.

(2) There is a limit of 7% interest on the bonds for the airport financing.

(3) Most major construction is still a year away so shouldn't be affected by present cut-backs in new government construction.

(4) The Port is buying the Oregon State Game Commission replacement land in exchange for Government Island. The Port will end up owning most of Government Island; also Sand, Lemon and McGuire Islands.

(5) They will have approximately 1,300 acres of land available for additional recreational devolopment by some other agencies.

(6) Airport officials are expecting the large 747 airplanes by 1972. They must be ready to handle the additional passengers in the terminal.

(7) The ultimate plan for the airport terminal does include a mass transit terminal.

(8) Relocated Marine Drive will be a scenic drive and no commercial vehicles will be permitted. They are concerned that trucks would interfere with the radar system.

(9) They anticipate that recreation provided for in the area will attract as many people as the airport operations.

(10) They are interested in joint development with other agencies, especially if there are any funds available.

Present from the Port of Portland were A. J. Heineman, E. R. Arnold, G. P. Hext; State Parks, Mr. McCosh, State Land, Mr. Cox; Multnomah County, Robert Baldwin and Roy Bennett; City Planning, Frank Frost; and A. E. Johnson and J. H. Versteeg from the State Highway.

A. E. Johnson
Metropolitan Engineer

By:

J H Versteeg

J. H. Versteeg
Assistant Metropolitan Engineer

JHV:pb

cc: F. D. Morgan
D. J. Barbee

RECEIVED
OCT 3 1969
OFFICE OF
STATE HIGHWAY ENGINEER

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FOR FILING

To:

**OREGON STATE HIGHWAY DEPARTMENT**

INTER-DEPARTMENT CORRESPONDENCE

Salem, Oregon
September 29, 1969

SUBJECT:

Port of Portland Meeting
on Airport Expansion Plans
and Government Island

Memo to the Files

On Friday September 26, 1969 I attended the Portland meeting at which time the Port officials outlined their airport expansion plans.

The purpose of the meeting was to acquaint city, county, and state officials with the prospective coordination needs and requests that the Port will be making of government in relation to the 1970-72 project. In attendance were Messrs. Johnson and Versteeg of the State Highway Division, Baldwin of Multnomah County Planning Commission, Bennett of Multnomah County Commission, a Portland City representative, Cox of the State Land Board, and myself.

With regard to recreation, the Port hopes that government agencies will assist them on providing the public recreation area opportunities and needs along the Columbia River bordering the proposed scenic Marine Drive beach area, a 150-acre or so public park site adjoining the commercial marina facility east of I 205, and the 1300 acres remaining at Government Island. The Tri-Club Yacht group will obtain a portion of McGuire Island in exchange for Sand Island.

Multnomah County appears to be interested in Government Island and has already decided to acquire the remaining 200 acres of private land. The Port says they hope to keep these areas for public recreation, but also want to recoup some of their land costs. Financial assistance to achieve public areas compatible to the airport operations and with public relations value appears to be their desire.

The Port will send letters to each agency regarding their specific need for answers from each on the project. We were each given a map of the airport expansion plan for review.

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Richard I. McCosh
Assistant State Parks
Superintendent

RIM:al
cc: Mr. Lloyd P. Shaw, Mr. David G. Talbot, Mr. Larry Jacobson
Mr. Warren Gaskill, Mr. Ray Wilson

NOTED
LLOYD P. SHAW

8405

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COMMISSION
DENNIS J. LINDSAY
President
LEE E. CALDWELL
Vice President
ERLING E. JACOBSEN
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ROBERT B. WILSON
Treasurer
LEW S. RUSSELL
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DONALD G. DRAKE
HAROLD S. HIRSCH
JOHN S. BRANDIS

GEORGE M. BALDWIN
General Manager

THE PORT OF PORTLAND

BOX 3529 PORTLAND, OREGON 97208 Telephone (503) 224-4260
Lindsay Building 710 S.W. 2nd Avenue

September 23, 1969

NOTED
R. L. PORTER

Mr. Forrest Cooper
Oregon State Highway Department
Salem, Oregon 97310

Dear Mr. Cooper:

Subject: Portland International Airport Expansion

With the Corps of Engineers dredge permit in hand, we are proceeding to initiate the program in an orderly manner as rapidly as possible in order to accommodate the tremendous growth in passenger traffic.

The following is a resume' on the present status of our program for expanding PIA.

Corps of Engineers:

On August 5 the Corps of Engineers issued a permit to the Port to dredge and fill in the Columbia River in accordance with the program we have had planned which included the fill area to be used for construction of I-205. This instrument has certain special provisions, including requirements for landscaping, exchange of lands for the State Game Commission lands, maintenance dredging in the adjacent channel, surveying of the land and water areas, and maintenance of water quality. The date for proceeding with dredging has not yet been set; however, we are proceeding with the engineering required for starting this work.

Lawsuit Regarding Dredge Permit:

The Citizens Committee for the Columbia River (led by north shore residents) and the Sierra Club have filed a complaint for a declaratory judgment and injunction against the Corps of Engineers and others listed below, stating that the fill in the river must be approved by Congress. The lawsuit names the following individually and in their Federal positions:

Copy - [illegible]
10-1-69

NOTED
F. B. KLABOE

NOTED
TOM EDWARDS

*Major Continuing Projects:*
**AVIATION**—PORTLAND INTERNATIONAL AIRPORT, PORTLAND-HILLSBORO AIRPORT, PORTLAND-TROUTDALE AIRPORT, AND SWAN ISLAND HELIPORT
**LAND DEVELOPMENT**—SWAN ISLAND INDUSTRIAL PARK, RIVERGATE INDUSTRIAL DISTRICT, AND PORT CENTER
**MARINE**—PIPELINE DREDGE OREGON, STERNWHEEL STEAMER PORTLAND, AND SWAN ISLAND SHIP REPAIR YARD

Stanley S. Resor, Secretary of the Army
William F. Cassidy, Chief of Engineers
Robert L. Bangert, District Engineer
John Volpe, Secretary of Transportation
Walter Hickel, Secretary of the Interior

The suit was filed September 4, 1969. Attached is copy of the complaint.

Federal Aviation Administration:

The FAA has approved our layout plan regarding air space. It has approved the major portion of the airport layout plan itself, and we expect to submit for final approval the layout plan within the next week. We anticipate no problem with approval since we have accepted FAA's recommendation on all the items to which FAA objected in our preliminary discussions.

State Game Commission:

We are proceeding with negotiations with the land owners to bring about the exchange of lands acceptable to the State Game Commission for its ownerships on Lemon, McGuire, and Government islands.

Land Purchases:

At our September 8 Commission meeting, authorization was given to acquire all those properties along the Marine Drive waterfront required in connection with the airport expansion program except for the five moorages located adjacent to the present airport which must be relocated. It is planned to take these five to the Commission for approval to enter condemnation at the next Commission meeting. The Port has already acquired approximately 50 percent of the frontage required for our expansion program since the acceptance of the report on PIA expansion submitted to the Commission in April, 1968. A large portion of the land required at the southwest corner of the airport has been acquired during the past 12 months. Efforts are now being accelerated to obtain the remainder of the required land.

Relocation of Streets and Utilities:

A meeting is scheduled for September 26 with all State and local agencies to discuss the necessary relocation of streets and utilities in connection with our expansion program. Also to be discussed are the proposed developments for recreation and other features resulting as a by-product of the expansion program. It is hoped that the park areas can be developed in conjunction with the State and county on a cooperative basis.

Engineering Design:

Approval has been received from the Commission, and we are proceeding to enter into a contract with Burns & McDonnell for the design of the terminal expansion and the south runway system. We have retained Leo Daly & Associates to do the preliminary design for military relocation, and it is expected that we will enter into a contract with that firm for the final design for relocation of military facilities required as a part of our program. Quinton Engineers has been retained to do the preliminary work regarding Columbia Bay Marina and the other waterfront facilities related to our expansion program. It is anticipated that Quinton will continue under a new contract for the final design of all of the waterfront facilities required as a part of the expansion program.

Construction Program:

Firm dates have not been set on the major features of the expansion program. Under construction at present are two gates on Concourse J. Preliminary design is under way for expansion of Concourse K, with award of contract expected this winter. A contract was recently awarded for expansion of Concourse L. The above work on three concourses on the existing terminal building will provide 23 gates to carry the traffic while additional design and construction for expansion of the terminal are under way. The necessary expansion of aircraft apron areas, automobile parking lots, and other facilities relating to maintaining capability on an interim basis are under way or in the preliminary design stage.

Airport Financing:

Negotiations are under way with the airlines regarding a finance program covering the cost of the expansion. The condition of the current bond market precludes setting a date for sale of bonds at this time. It is planned to conclude the negotiations on the program in order that the sale can proceed as soon as the market improves sufficiently to allow the first sale of airport revenue bonds. The initial construction listed above is being carried out from Port reserves with the stipulation that the funds will be refunded upon sale of revenue bonds.

The foregoing is a very brief resume' of the present status of factors involved in the expansion of PIA. If there are any further questions regarding these items, please feel free to call.

Sincerely,

THE PORT OF PORTLAND

George M. Baldwin

GEORGE M. BALDWIN
General Manager

mm
Enclosure

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SEP 24 1969
OFFICE OF
STATE HIGHWAY ENGINEER

Records
08-240.01

[illegible] (not yet filed)

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Filed Sep 4
Service on U.S. Marsh. Office Sep 22
6 copys to members 10-1-69

UNITED STATES DISTRICT COURT

DISTRICT OF OREGON

CITIZENS COMMITTEE FOR THE COLUMBIA RIVER and SIERRA CLUB,

Plaintiffs,

vs.

STANLEY S. RESOR, individually and as Secretary of the Army of the United States, WILLIAM F. CASSIDY, individually and as Chief of Engineers, Corps of Engineers of the U.S. Army, ROBERT L. BANGERT, individually and as District Engineer, Portland District, Corps of Engineers of the U.S. Army, JOHN VOLPE, individually and as Secretary of Transportation of the United States, and WALTER F. HICKEL, individually and as Secretary of the Interior of the United States,

Defendants.

COMPLAINT FOR DECLARATORY JUDGMENT AND INJUNCTION

COME NOW the plaintiffs and state to the Court as follows:

I

This action arises under the following sections of the Constitution of the United States and of statutes of the United States as hereinafter more fully appears. The matter in controversy exceeds, exclusive of interest and costs, the sum of

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Filed Sep 22 ✓
Service on U.S. Atty. Office

Copy to [illegible] 10-1-69

UNITED STATES DISTRICT COURT

DISTRICT OF OREGON

CITIZENS COMMITTEE FOR THE COLUMBIA RIVER and SIERRA CLUB,

Plaintiffs,

vs.

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Defendants.

COMPLAINT FOR DECLARATORY JUDGMENT AND INJUNCTION

COME NOW the plaintiffs and state to the Court as follows:

I

This action arises under the following sections of the Constitution of the United States and of statutes of the United States as hereinafter more fully appears. The matter in controversy exceeds, exclusive of interest and costs, the sum of $10,000.

> The Fifth Amendment to the Constitution of the United States, USC Const. Amendment V
>
> The Act of March 3, 1899, 30 Stat. 1151; 33 USC §§401 and 403 (Rivers and Harbors Appropriation Act of 1899)

The Act of October 15, 1966, 80 Stat. 950, et seq.; 49 USC §1651-§1659, as amended; (The Transportation Act of 1966, as amended)

The Act of May 13, 1946, 60 Stat. 170 et seq.; 49 USC §§1101-1120, as amended (The Federal Airport Act, as amended)

The Act of August 23, 1958, 72 Stat. 737, et seq.; 49 USC §§1301 et seq., especially §§1349 & 1350, as amended (The Federal Aviation Act of 1958, as amended)

The Act of March 23, 1906, 34 Stat. 84, et seq.; 33 USC §491 et seq., as amended (The Bridge Act of 1906, as amended)

The Act of August 2, 1946, 60 Stat. 847, et seq.; 33 USC §525, et seq., as amended, (The General Bridge Act of 1946, as amended)

The Act of August 27, 1958, 72 Stat. 885, et seq., Title 23, USC, as amended (By this Act Title 23 - Highways - was revised, codified, and enacted into positive law)

The Act of March 10, 1934, 48 Stat. 401, et seq.; 16 USC §§661, et seq., especially §§661-663, et seq., as amended (The Fish and Wildlife Coordination Act)

The Act of September 2, 1937, 50 Stat. 917, et seq.; 16 USC §669, as amended (The Pittman Robertson Act)

Memorandum of Understanding between the Secretary of the Interior and the Secretary of the Army 33 CFR §209.120

The Act of August 3, 1968, 82 Stat. 625, 16 USC §§1221-1226 (The Estuarine Areas Act)

33 USC §466 (The Water Pollution Control Act, as amended)

5 USC §§500-576 (Administrative Procedure) and §§701-706 (Judicial Review)

II

Plaintiff Citizens Committee for the Columbia River is an unincorporated and non-profit association of persons, whose purposes include conservation, protection, and enhancement of the quality of air, water, land, natural beauty, historic values, fish et seq., [illegible] (The Transportation Act of 1966, as amended)

The Act of May 13, 1946, 60 Stat. 170 et seq.; 49 USC §§1101-1120, as amended (The Federal Airport Act, as amended)

The Act of August 23, 1958, 72 Stat. 737, et seq.; 49 USC §§1301 et seq., especially §§1349 & 1350, as amended (The Federal Aviation Act of 1958, as amended)

The Act of March 23, 1906, 34 Stat. 84, et seq.; 33 USC §491 et seq., as amended (The Bridge Act of 1906, as amended)

The Act of August 2, 1946, 60 Stat. 847, et seq.; 33 USC §525, et seq., as amended, (The General Bridge Act of 1946, as amended)

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33 USC §466 (The Water Pollution Control Act, as amended)

5 USC §§500-576 (Administrative Procedure) and §§701-706 (Judicial Review)

## II

Plaintiff Citizens Committee for the Columbia River is an unincorporated and non-profit association of persons, whose purposes include conservation, protection, and enhancement of the quality of air, water, land, natural beauty, historic values, fish and wildlife, recreational values, and ecology, including noise abatement, of the Columbia River and its adjacent areas.

Plaintiff Sierra Club is a non-profit corporation, organized under the laws of the State of California, with members and chapters in various parts of the United States, including the states of Washington and Oregon, dedicated to the conservation and enhancement of the quality of the outdoor environment of the United States.

Stanley S. Resor is, and was at all times pertinent to the orders, findings, actions, and decisions complained of herein, Secretary of the Department of the Army of the United States, with authority and responsibility either personally, or by action of his assistants and agents to whom he has delegated authority, for actions, findings, orders, and decisions relating to the application of the Port of Portland, an Oregon municipal corporation, for a certain permit for works in the Columbia River near Portland, Oregon, and Vancouver, Washington, in connection with expansion of Portland International Airport, all as more fully appears hereinafter.

William F. Cassidy is, and was at all times pertinent to the orders, findings, actions, and decisions complained of herein, Chief of Engineers, Corps of Engineers of the United States Army, with authority directly or by delegation from the Secretary of the Army for actions, findings, orders, and decisions relating to the application of the Port of Portland, an Oregon municipal corporation, for a certain permit for works in the Columbia River near Portland, Oregon, and Vancouver, Washington, for expansion of Portland International Airport, all as more fully appears hereinafter.

Robert L. Bangert is, and was at all times pertinent to the orders, findings, actions, and decisions complained of herein, District Engineer, Portland District, Corps of Engineers of the United States Army, with authority directly or by delegation from the Secretary of the Army for the actions, findings, orders, and decisions relating to the application of the Port of Portland, an and chapters in various parts of the United States, including the states of Washington and Oregon, dedicated to the conservation and enhancement of the quality of the outdoor environment of the United States.

Stanley S. Resor is, and was at all times pertinent to the orders, findings, actions, and decisions complained of herein, Secretary of the Department of the Army of the United States, with authority and responsibility either personally, or by action of his assistants and agents to whom he has delegated authority, for actions, findings, orders, and decisions relating to the application of the Port of Portland, an Oregon municipal corporation, for a certain permit for works in the Columbia River near Portland, Oregon, and Vancouver, Washington, in connection with expansion of Portland International Airport, all as more fully appears hereinafter.

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Robert L. Bangert is, and was at all times pertinent to the orders, findings, actions, and decisions complained of herein, District Engineer, Portland District, Corps of Engineers of the United States Army, with authority directly or by delegation from the Secretary of the Army for the actions, findings, orders, and decisions relating to the application of the Port of Portland, an

Oregon municipal corporation, for a certain permit for works in the Columbia River near Portland, Oregon, and Vancouver, Washington, for expansion of Portland International Airport, all as more fully appears hereinafter.

John Volpe is, and was at all times pertinent to the orders, findings, actions, and decisions complained of herein, Secretary of the Department of Transportation of the United States, with authority and responsibility either personally, or by action of his assistants and agents to whom he has delegated authority, for the actions, findings, orders, and decisions (a) relating to the application of the Port of Portland, an Oregon municipal corporation, to the Corps of Engineers for a certain permit for works in the Columbia River near Portland, Oregon, and Vancouver, Washington, for expansion of Portland International Airport, (b) relating to plans, programs, and projects of the Port of Portland to expand Portland International Airport, and (c) relating to the orders, programs and projects of State Highway Commission of Oregon to locate a highway (I-205) on the area of the Columbia River proposed to be filled, and to construct a bridge across the Columbia River from the area to be filled, all as more fully appears, hereinafter.

Walter F. Hickel is, and was at all times pertinent to the orders, findings, actions, and decisions complained of herein, Secretary of the Department of the Interior of the United States with authority and responsibility either personally, or by action of his assistants and agents to whom he has delegated authority for actions, findings, orders, and decisions relating to the application of the Port of Portland, an Oregon municipal corporation, for a certain permit for works in the Columbia River near Portland, Oregon, and Vancouver, Washington, for expansion of Portland International Airport, all as more fully appears hereinafter, and with relation to applications of the Port of Portland and the State Highway the Columbia River near Portland, Oregon, and Vancouver, Washington, for expansion of Portland International Airport, all as more fully appears hereinafter.

John Volpe is, and was at all times pertinent to the orders, findings, actions, and decisions complained of herein, Secretary of the Department of Transportation of the United States, with authority and responsibility either personally, or by action of his assistants and agents to whom he has delegated authority, for the actions, findings, orders, and decisions (a) relating to the application of the Port of Portland, an Oregon municipal corporation, to the Corps of Engineers for a certain permit for works in the Columbia River near Portland, Oregon, and Vancouver, Washington, for expansion of Portland International Airport, (b) relating to plans, programs, and projects of the Port of Portland to expand Portland International Airport, and (c) relating to the orders, programs and projects of State Highway Commission of Oregon to locate a highway (I-205) on the area of the Columbia River proposed to be filled, and to construct a bridge across the Columbia River from the area to be filled, all as more fully appears, hereinafter.

Walter F. Hickel is, and was at all times pertinent to the orders, findings, actions, and decisions complained of herein, Secretary of the Department of the Interior of the United States with authority and responsibility either personally, or by action of his assistants and agents to whom he has delegated authority for actions, findings, orders, and decisions relating to the application of the Port of Portland, an Oregon municipal corporation, for a certain permit for works in the Columbia River near Portland, Oregon, and Vancouver, Washington, for expansion of Portland International Airport, all as more fully appears hereinafter, and with relation to applications of the Port of Portland and the State Highway

Commission of the State of Oregon to the Department of Transportation of the United States for plans, programs, and projects for the proposed airport expansion and the location and construction of a new highway and bridge (I-205) on lands proposed to be filled in the Columbia River by the Port of Portland as part of its airport expansion project.

II

Some time prior to 1968 the Port of Portland began consideration of possible expansion of Portland International Airport at its existing location or the construction of an additional new airport at another location, and decided to expand the airport at its present location by dredging and filling a large adjacent area of the Columbia River in the vicinity of Portland and opposite from Vancouver, Washington. The proposed land fill was approximately 700 acres, more than one square mile of the Columbia River. On the grounds of the airport as proposed would be military, commercial (both passenger and cargo), an industrial park, and commercial and other activities. The project would require the complete dredging up and destruction of Lemon Island (except for a small tip), total elimination of Sand Island, and of a large part of Government Island, which islands presently lie in the Columbia River in the area of the proposed airport expansion. These islands are, or include, publicly owned wildlife and game refuges, and are heavily used for recreational purposes. They include lands acquired by the State of Oregon with federal assistance under the Pittman-Robertson Act, 16 USC §669, and lands which Multnomah County, Oregon, applied and qualified for federal assistance in purchasing for park purposes -- assistance which was to be granted from The Land and Water Conservation Fund, administered by the Department of the Interior. The proposed fill would involve the closure of the south channel of the Columbia River now flowing to the south of the above-mentioned islands, and the diversion of the proposed airport expansion and the location and construction of a new highway and bridge (I-205) on lands proposed to be filled in the Columbia River by the Port of Portland as part of its airport expansion project.

II

Some time prior to 1968 the Port of Portland began consideration of possible expansion of Portland International Airport at its existing location or the construction of an additional new airport at another location, and decided to expand the airport at its present location by dredging and filling a large adjacent area of the Columbia River in the vicinity of Portland and opposite from Vancouver, Washington. The proposed land fill was approximately 700 acres, more than one square mile of the Columbia River. On the grounds of the airport as proposed would be military, commercial (both passenger and cargo), an industrial park, and commercial and other activities. The project would require the complete dredging up and destruction of Lemon Island (except for a small tip), total elimination of Sand Island, and of a large part of Government Island, which islands presently lie in the Columbia River in the area of the proposed airport expansion. These islands are, or include, publicly owned wildlife and game refuges, and are heavily used for recreational purposes. They include lands acquired by the State of Oregon with federal assistance under the Pittman-Robertson Act, 16 USC §669, and lands which Multnomah County, Oregon, applied and qualified for federal assistance in purchasing for park purposes -- assistance which was to be granted from The Land and Water Conservation Fund, administered by the Department of the Interior. The proposed fill would involve the closure of the south channel of the Columbia River now flowing to the south of the above-mentioned islands, and the diversion of that part of the river's flow into the north channel of the Columbia River through a cut to be dug through Government Island.

On May 3, 1968, the Port of Portland applied to the District Engineer of the Portland District for a permit to carry out the dredging, filling, and construction of works necessary for the proposed airport expansion. Public notice was given, letters of protest received, application of the Port of Portland was revised, and communications were received by the Corps of Engineers from various other federal agencies. On August 5, 1969, Corps of Engineers permit NPPND-WM-P 1507-27 (Columbia River-Dredging)-166 for the proposed dredge, fill, and construction work in the Columbia River for the expansion of Portland International Airport was granted to the Port of Portland by defendant Colonel Robert Bangert, District Engineer, by authority of the defendant Resor, Secretary of the Army, subject to certain terms and conditions which were accepted by the Port of Portland. A copy of that permit is attached hereto marked Attachment A and incorporated in its entirety in this complaint.

## III

The Corps of Engineers in granting the permit dated August 5, 1969, (Attachment A) has exceeded its statutory authority, and the permit is therefore invalid, unlawful, and void. Any action by the Port of Portland to dredge or fill in the Columbia River pursuant to this permit would be, therefore, unlawful. The abovesaid permit (Attachment A) purports by its terms to be granted "under the provisions of Section 10 of the act of Congress approved March 3, 1899 (33 USC §403)". The proposed dredge and fill and other works include, however, one or more dikes and causeways to be built over or in the Columbia River which is a navigable river of the United States, and according to the terms of 33 USC §401, 30 Stat. 1151:

> "It shall not be lawful to construct or commence

Columbia River through a cut to be dug through Government Island.

On May 3, 1968, the Port of Portland applied to the District Engineer of the Portland District for a permit to carry out the dredging, filling, and construction of works necessary for the proposed airport expansion. Public notice was given, letters of protest received, application of the Port of Portland was revised, and communications were received by the Corps of Engineers from various other federal agencies. On August 5, 1969, Corps of Engineers permit NPPND-WM-P 1507-27 (Columbia River-Dredging)-166 for the proposed dredge, fill, and construction work in the Columbia River for the expansion of Portland International Airport was granted to the Port of Portland by defendant Colonel Robert Bangert, District Engineer, by authority of the defendant Resor, Secretary of the Army, subject to certain terms and conditions which were accepted by the Port of Portland. A copy of that permit is attached hereto marked Attachment A and incorporated in its entirety in this complaint.

## III

The Corps of Engineers in granting the permit dated August 5, 1969, (Attachment A) has exceeded its statutory authority, and the permit is therefore invalid, unlawful, and void. Any action by the Port of Portland to dredge or fill in the Columbia River pursuant to this permit would be, therefore, unlawful. The abovesaid permit (Attachment A) purports by its terms to be granted "under the provisions of Section 10 of the act of Congress approved March 3, 1899 (33 USC §403)". The proposed dredge and fill and other works include, however, one or more dikes and causeways to be built over or in the Columbia River which is a navigable river of the United States, and according to the terms of 33 USC §401, 30 Stat. 1151:

"It shall not be lawful to construct or commence

> the construction of any bridge, dam, dike, or causeway over or in any port, roadstead, haven, harbor, canal, navigable river, or other navigable water of the United States until the consent of Congress to the building of such structures shall have been obtained and until the plans for the same shall have been submitted to and approved by the Chief of Engineers and by the Secretary of the Army . . ."

The Congress has not given its consent to the building of these dikes or causeways or any of them.

IV

Even if the application of the Port of Portland to dredge and fill in the Columbia River for the expansion of Portland International Airport did not involve a dike or causeway, it would still be invalid, unlawful, and void, for even under the authority of 33 USC §403, the action of the Corps of Engineers in granting this permit has been arbitrary and capricious, in violation of procedures and standards required by law, based on an inadequate record, unsupported by the record, and based upon procedures and actions which violate the due process clause of the Fifth Amendment to the U. S. Constitution.

V

The Port of Portland proposes to dredge and fill in more than one square mile of the Columbia River, constructing one or more dikes and causeways in the project. The Highway Commission of the State of Oregon proposes to locate a new interstate highway (I-205) on the area filled and to construct a bridge across the Columbia River beginning at the end of the filled area. To carry out its expansion as proposed the Port of Portland will require and has applied to the Federal Aviation Administration of the Department of Transportation for approval of the airport expansion project. To carry out the proposed interstate highway construction, the Oregon State Highway Commission will require and has applied for approval of its plans, program and project for I-205 to the Federal Highway Administration of the Department of

> harbor, canal, navigable river, or other navigable water of the United States until the consent of Congress to the building of such structures shall have been obtained and until the plans for the same shall have been submitted to and approved by the Chief of Engineers and by the Secretary of the Army . . ."

The Congress has not given its consent to the building of these dikes or causeways or any of them.

IV

Even if the application of the Port of Portland to dredge and fill in the Columbia River for the expansion of Portland International Airport did not involve a dike or causeway, it would still be invalid, unlawful, and void, for even under the authority of 33 USC §403, the action of the Corps of Engineers in granting this permit has been arbitrary and capricious, in violation of procedures and standards required by law, based on an inadequate record, unsupported by the record, and based upon procedures and actions which violate the due process clause of the Fifth Amendment to the U. S. Constitution.

V

The Port of Portland proposes to dredge and fill in more than one square mile of the Columbia River, constructing one or more dikes and causeways in the project. The Highway Commission of the State of Oregon proposes to locate a new interstate highway (I-205) on the area filled and to construct a bridge across the Columbia River beginning at the end of the filled area. To carry out its expansion as proposed the Port of Portland will require and has applied to the Federal Aviation Administration of the Department of Transportation for approval of the airport expansion project. To carry out the proposed interstate highway construction, the Oregon State Highway Commission will require and has applied for approval of its plans, program and project for I-205 to the Federal Highway Administration of the Department of

Transportation, and to carry out its plans, program, and project for the bridge, the Oregon State Highway Commission has applied for and will require approval of its bridge plans, etc., and a permit from the Coast Guard, which is part of the Department of Transportation. The defendant John Volpe, Secretary of the Department of Transportation, has authority over and is responsible for, either directly or by delegation to his assistants and agents, approval of (1) the causeway or causeways proposed by the Port of Portland, (2) the airport expansion proposed by the Port of Portland, (3) the interstate highway (I-205) proposed by the Oregon State Highway Commission, and (4) the bridge over the Columbia River proposed by the Oregon State Highway Commission.

Because the expansion of Portland International Airport as proposed requires the use of publicly owned land from a recreation area and wildlife and waterfowl refuge of national, state, and local significance (Government Island Game Management Area), and of an historic site of national, state, and local significance (i.e. the Columbia River), the program and project is subject to the requirements of 49 USC §1653(f) which states as follows:

> "It is hereby declared to be the national policy that special effort should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites. The Secretary of Transportation shall cooperate and consult with the Secretaries of the Interior, Housing and Urban Development, and Agriculture, and with the States in developing transportation plans and programs that include measures to maintain or enhance the natural beauty of the lands traversed. After August 23, 1968, the Secretary shall not approve any program or project which requires the use of any publicly owned land from a public park, recreation area, or wildlife and waterfowl refuge of national, State, or local significance as determined by the Federal, State, or local officials having jurisdiction thereof, or any land from an historic site of national, State, or local significance as so determined by such officials unless (1) there is no feasible and prudent alternative to the use of such land, and (2) such program includes all possible planning to minimize harm to such park, recreational area, wildlife and waterfowl refuge,

Transportation, and to carry

for the bridge, the Oregon State Highway Commission has applied for and will require approval of its bridge plans, etc., and a permit from the Coast Guard, which is part of the Department of Transportation. The defendant John Volpe, Secretary of the Department of Transportation, has authority over and is responsible for, either directly or by delegation to his assistants and agents, approval of (1) the causeway or causeways proposed by the Port of Portland, (2) the airport expansion proposed by the Port of Portland, (3) the interstate highway (I-205) proposed by the Oregon State Highway Commission, and (4) the bridge over the Columbia River proposed by the Oregon State Highway Commission.

Because the expansion of Portland International Airport as proposed requires the use of publicly owned land from a recreation area and wildlife and waterfowl refuge of national, state, and local significance (Government Island Game Management Area), and of an historic site of national, state, and local significance (i.e. the Columbia River), the program and project is subject to the requirements of 49 USC §1653(f) which states as follows:

> "It is hereby declared to be the national policy that special effort should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites. The Secretary of Transportation shall cooperate and consult with the Secretaries of the Interior, Housing and Urban Development, and Agriculture, and with the States in developing transportation plans and programs that include measures to maintain or enhance the natural beauty of the lands traversed. After August 23, 1968, the Secretary shall not approve any program or project which requires the use of any publicly owned land from a public park, recreation area, or wildlife and waterfowl refuge of national, State, or local significance as determined by the Federal, State, or local officials having jurisdiction thereof, or any land from an historic site of national, State, or local significance as so determined by such officials unless (1) there is no feasible and prudent alternative to the use of such land, and (2) such program includes all possible planning to minimize harm to such park, recreational area, wildlife and waterfowl refuge,

or historic site resulting from such use."

On July 11, 1969, defendant John Volpe, Secretary of the Department of Transportation, gave his approval to the plan, program and project of the Port of Portland for the expansion of Portland International Airport into the Columbia River. This order, finding, act, or decision of the defendant John Volpe, Secretary of Transportation, was in violation of 49 USC §1653(f) in that

(1) he had not followed the declared national policy by making the required special effort to preserve the natural beauty of the countryside and public park, and recreation lands, wildlife and waterfowl refuges, and historic sites,

(2) he had not cooperated and consulted with the Secretaries of Interior, Housing and Urban Development, and Agriculture, and with the States in developing transportation plans and programs that include measures to maintain or enhance the natural beauty of the lands traversed,

(3) there were and are feasible prudent alternatives to the use of the area of the Columbia River and of the islands to be dredged or changed, both at the existing location of the airport and at other locations,

(4) the plan, program, and project he approved did not include all possible planning to minimize harm to the park, recreational area, wildlife and waterfowl refuges, and historic site.

All other approvals, if any, made by the Secretary of Transportation or his assistants or agents to whom he has delegated authority or any other members or officers of his department approving the proposed expansion of Portland International Airport under other authorities are likewise unlawful and invalid, including, but not limited to, approvals given by any of the officers or agents of the Federal Aviation Administration of the Department of Transportation in that the requirements of 49 USC §1653(f) have not been met.

gram and project of the Port of Portland International Airport into the Columbia River. This order, finding, act, or decision of the defendant John Volpe, Secretary of Transportation, was in violation of 49 USC §1653(f) in that

(1) he had not followed the declared national policy by making the required special effort to preserve the natural beauty of the countryside and public park, and recreation lands, wildlife and waterfowl refuges, and historic sites,

(2) he had not cooperated and consulted with the Secretaries of Interior, Housing and Urban Development, and Agriculture, and with the States in developing transportation plans and programs that include measures to maintain or enhance the natural beauty of the lands traversed,

(3) there were and are feasible prudent alternatives to the use of the area of the Columbia River and of the islands to be dredged or changed, both at the existing location of the airport and at other locations,

(4) the plan, program, and project he approved did not include all possible planning to minimize harm to the park, recreational area, wildlife and waterfowl refuges, and historic site.

All other approvals, if any, made by the Secretary of Transportation or his assistants or agents to whom he has delegated authority or any other members or officers of his department approving the proposed expansion of Portland International Airport under other authorities are likewise unlawful and invalid, including, but not limited to, approvals given by any of the officers or agents of the Federal Aviation Administration of the Department of Transportation in that the requirements of 49 USC §1653(f) have not been met.

Plaintiffs have had great difficulty obtaining information relating to approvals granted, but believe and therefore allege

(1) that neither the defendant John Volpe, Secretary of Transportation, nor any of his assistants or agents have approved the causeway or causeways involved in the Port of Portland's proposed expansion of Portland International Airport into the Columbia River, as required under 49 USC §1655(g)(6) and, therefore, the permit granted by the Corps of Engineers (Attachment A) is invalid. If the causeway or causeways have been approved, however, the approval is invalid and unlawful because it did not meet the requirements of 49 USC §1653(f) and was granted arbitrarily and capriciously in violation of the requirements of law and of due process of law.

(2) that neither the defendant John Volpe, Secretary of Transportation, nor any of his assistants or agents have approved (a) the plans, programs, or project of the Oregon State Highway Commission for the location and construction of the proposed interstate highway I-205 on the area proposed to be filled, nor (b) the location or construction of the proposed bridge across the Columbia River beginning at the end of the proposed fill. If such approvals have been given, however, they are invalid and unlawful for the reasons stated above.

## VI

Defendant Walter F. Hickel, Secretary of the Department of the Interior of the United States, has authorities and responsibilities which relate directly to the decision of the Secretary of the Army in granting a permit to the Port of Portland for its dredge, fill, and construction work in the Columbia River (Attachment A) and which relate directly to the requirements placed upon the Secretary of Transportation by the terms of 49 USC §1653(f), i.e., which relate to the decisions of the Secretary of allege

(1) that neither the defendant John Volpe, Secretary of Transportation, nor any of his assistants or agents have approved the causeway or causeways involved in the Port of Portland's proposed expansion of Portland International Airport into the Columbia River, as required under 49 USC §1655(g)(6) and, therefore, the permit granted by the Corps of Engineers (Attachment A) is invalid. If the causeway or causeways have been approved, however, the approval is invalid and unlawful because it did not meet the requirements of 49 USC §1653(f) and was granted arbitrarily and capriciously in violation of the requirements of law and of due process of law.

(2) that neither the defendant John Volpe, Secretary of Transportation, nor any of his assistants or agents have approved (a) the plans, programs, or project of the Oregon State Highway Commission for the location and construction of the proposed interstate highway I-205 on the area proposed to be filled, nor (b) the location or construction of the proposed bridge across the Columbia River beginning at the end of the proposed fill. If such approvals have been given, however, they are invalid and unlawful for the reasons stated above.

## VI

Defendant Walter F. Hickel, Secretary of the Department of the Interior of the United States, has authorities and responsibilities which relate directly to the decision of the Secretary of the Army in granting a permit to the Port of Portland for its dredge, fill, and construction work in the Columbia River (Attachment A) and which relate directly to the requirements placed upon the Secretary of Transportation by the terms of 49 USC §1653(f), i.e., which relate to the decisions of the Secretary of

Transportation or his assistants and agents in approving the proposed airport expansion, dikes, causeways, dredge and fill, interstate highway, and bridge. In each of these decisions made by the Secretary of the Army or the Secretary of Transportation, reliance is placed upon the consultation, studies and recommendations of the Secretary of the Interior, who is responsible to carry out on behalf of the people of the United States the policies and requirements assigned to him under The Transportation Act of 1966, 49 USC §1653(f), The Fish and Wildlife Coordination Act, The Pittman-Robertson Act, The Estuarine Areas Act, the Water Pollution Control Act, and The Memorandum of Understanding between the Secretary of Interior and the Secretary of the Army, and other acts. Defendant Secretary of the Interior Walter F. Hickel has not carried out the requirements placed upon him by these statutes in connection with the proposals of the Port of Portland and Oregon State Highway Commission, and has either directly or through his assistants and agents acted in an arbitrary and capricious fashion, acted contrary to facts, has failed to inform himself adequately to carry out his responsibilities and protect the public interest, and has violated the requirements of law and of due process of law. As a result, the decisions, findings, orders, and actions of the Secretaries of the Army and of Transportation relating to the proposed expansion of Portland International Airport into the Columbia River made heretofore are invalid and unlawful, and no further permits or approvals relating to this expansion or for the location of interstate highway 205 or the construction of the proposed bridge on the proposed fill can lawfully be granted.

WHEREFORE, plaintiffs ask the Court for a declaratory judgment and a permanent injunction

(1) declaring the permit dated August 5, 1969, granted by the Corps of Engineers to the Port of Portland (Attachment A hereto) invalid, unlawful, and void;

Transportation or his assistants and agents in approving the [illegible] posed airport expansion, dikes, causeways, dredge and fill, interstate highway, and bridge. In each of these decisions made by the Secretary of the Army or the Secretary of Transportation, reliance is placed upon the consultation, studies and recommendations of the Secretary of the Interior, who is responsible to carry out on behalf of the people of the United States the policies and requirements assigned to him under The Transportation Act of 1966, 49 USC §1653(f), The Fish and Wildlife Coordination Act, The Pittman-Robertson Act, The Estuarine Areas Act, the Water Pollution Control Act, and The Memorandum of Understanding between the Secretary of Interior and the Secretary of the Army, and other acts. Defendant Secretary of the Interior Walter F. Hickel has not carried out the requirements placed upon him by these statutes in connection with the proposals of the Port of Portland and Oregon State Highway Commission, and has either directly or through his assistants and agents acted in an arbitrary and capricious fashion, acted contrary to facts, has failed to inform himself adequately to carry out his responsibilities and protect the public interest, and has violated the requirements of law and of due process of law. As a result, the decisions, findings, orders, and actions of the Secretaries of the Army and of Transportation relating to the proposed expansion of Portland International Airport into the Columbia River made heretofore are invalid and unlawful, and no further permits or approvals relating to this expansion or for the location of interstate highway 205 or the construction of the proposed bridge on the proposed fill can lawfully be granted.

WHEREFORE, plaintiffs ask the Court for a declaratory judgment and a permanent injunction

(1) declaring the permit dated August 5, 1969, granted by the Corps of Engineers to the Port of Portland (Attachment A hereto) invalid, unlawful, and void;

(2) declaring the approval of the plans, programs, and projects of the Port of Portland for expansion of Portland International Airport made by the defendant John Volpe, Secretary of the Department of Transportation on or about July 11, 1969, to be invalid, unlawful, and void;

(3) declaring any and all other approvals made by the defendants or any of their assistants or agents heretofore relating to the plans, programs, or project

(a) of the Port of Portland for the expansion of Portland International Airport, including dredge, fill and construction work in the Columbia River,

(b) of the State Highway Commission of Oregon for the location and construction of interstate highway 205 on the area of the Columbia River proposed to be filled by the Port of Portland for expansion of Portland International Airport, or for the construction of a bridge across the Columbia River, beginning at the end of that proposed fill, to be invalid, unlawful, and void.

(4) permanently enjoining the defendants from either personally or through their assistants or agents approving any plans, programs, or projects, or granting any permits for the expansion of Portland International Airport by dredging and filling in the Columbia River, or for the location of any highway, bridge, or causeway in the Columbia River unless and until the requirements of 49 USC §1653(f) have been complied with;

(5) permanently enjoining the defendants from either personally or through their assistants or agents approving any plans, programs, or projects, or granting any permits for any dam, dike, or causeway in the Columbia River unless and until the consent of

. . .

. . .

projects of the Port of Portland for expansion of Portland International Airport made by the defendant John Volpe, Secretary of the Department of Transportation on or about July 11, 1969, to be invalid, unlawful, and void;

(3) declaring any and all other approvals made by the defendants or any of their assistants or agents heretofore relating to the plans, programs, or project

(a) of the Port of Portland for the expansion of Portland International Airport, including dredge, fill and construction work in the Columbia River,

(b) of the State Highway Commission of Oregon for the location and construction of interstate highway 205 on the area of the Columbia River proposed to be filled by the Port of Portland for expansion of Portland International Airport, or for the construction of a bridge across the Columbia River, beginning at the end of that proposed fill, to be invalid, unlawful, and void.

(4) permanently enjoining the defendants from either personally or through their assistants or agents approving any plans, programs, or projects, or granting any permits for the expansion of Portland International Airport by dredging and filling in the Columbia River, or for the location of any highway, bridge, or causeway in the Columbia River unless and until the requirements of 49 USC §1653(f) have been complied with;

(5) permanently enjoining the defendants from either personally or through their assistants or agents approving any plans, programs, or projects, or granting any permits for any dam, dike, or causeway in the Columbia River unless and until the consent of

. . .

. . .

Congress to such dam, dike, or causeway has been obtained; and

(6) for such other and further relief as is just and equitable in the premises.

Marvin B. Durning

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CARY, DURNING, PRINCE & SMITH
Attorneys for the Plaintiffs

Charles H. Habernigg

Charles Habernigg
GYGI & ENGEL
Attorneys for the Plaintiffs

equitable in the premises.

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CARY, DURNING, PRINCE & SMITH
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Charles H. Habernigg
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Attorneys for the Plaintiffs

DEPARTMENT OF THE ARMY
PORTLAND DISTRICT, CORPS OF ENGINEERS
P. O. BOX 2946
PORTLAND, OREGON 97208

DEPARTMENT OF THE ARMY

NPPND-WM-P
1507-27(Columbia River-
Dredging)-166.

PERMIT

Portland District, Corps of Engineers
5 August 1969

Port of Portland
Box 3529
Portland, Oregon 97208

Gentlemen:

Referring to written request dated 3 May 1968

Upon the recommendation of the Chief of Engineers, and under the provisions of Section 10 of the Act of Congress approved March 3, 1899, (33 USC 403) entitled "An act making appropriations for the construction, repair, and preservation of certain public works on rivers and harbors, and for other purposes," you are hereby authorized by the Secretary of the Army.

to dredge and fill

in the Columbia River Miles 110.1 to 117.5

near Portland, Oregon - Vancouver, Washington

in accordance with the plans shown on the drawings attached hereto, marked 1507-27(Columbia River-Dredging)-166/1, 166/2, 166/3 and other plans as hereinafter prescribed subject to the following conditions:

ATTACHMENT A

1507-27(Columbia River-
Dredging)-166.

Portland District, Corps of Engineers
5 August 1969

Port of Portland
Box 3529
Portland, Oregon 97208

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Referring to written request dated 3 May 1968

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to dredge and fill

in the Columbia River Miles 110.1 to 117.5

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in accordance with the plans shown on the drawings attached hereto, marked 1507-27(Columbia River-Dredging)-166/1, 166/2, 166/3 and other plans as hereinafter prescribed subject to the following conditions:

ATTACHMENT A

(a) That this instrument does not convey any property rights either in real estate or material, or any exclusive privileges; and that it does not authorize any injury to private property or invasion of private rights, or any infringement of Federal, State, or local laws or regulations, nor does it obviate the necessity of obtaining State or local assent required by law for the work authorized.

(b) That the work authorized herein shall be subject to the supervision and approval of the District Engineer, Corps of Engineers, in charge of the District in which the work is to be performed.

(c) That any material dredged in the prosecution of the work herein authorized shall be removed evenly and no large refuse piles, ridges across the bed of the waterway, or deep holes that may have a tendency to cause injury to navigable channels or to the banks of the waterway shall be left. If any pipe, wire, or cable hereby authorized is laid in a trench, the formation of permanent ridges across the bed of the waterway shall be avoided and the backfilling shall be so done as not to increase the cost of future dredging for navigation. Any material to be deposited or dumped under this authorization shall be deposited or dumped at the locality shown on the drawings hereto attached, and, if so prescribed thereon, within or behind a retaining structure or structures which will prevent the return of the material to the waterway.

(d) That the work authorized herein shall be performed in a manner so as not to adversely affect the general public interest. Factors affecting the general public interest include, but are not limited to, navigation, fish and wildlife, water quality, conservation, aesthetics and ecology.

(e) That the District Engineer may at any time make such inspections as he may deem necessary to assure that the work is performed in accordance with the conditions of this permit and all expenses thereof shall be borne by the permittee.

(f) That work under this permit may be suspended and/or the permit modified by authority of the Secretary of The Army if, after an evaluation of all relevant factors, it is determined that suspension and/or modification is in the general public interest.

(g) That this permit may be revoked by authority of the Secretary of The Army based upon significant changes in conditions occurring after issuance of this permit if, after an evaluation of the impact of such changes in conditions on the general public interest, the Secretary determines that revocation is in the general public interest.

ATTACHMENT A

[illegible] invasion of [illegible] [illegible] laws or regulations, nor [illegible] State or local assent required

[illegible] authorized herein shall be subject to the super- [illegible] District Engineer, Corps of Engineers, in charge [illegible] the work is to be performed.

[illegible] dredged in the prosecution of the work herein [illegible] evenly and no large refuse piles, ridges [illegible] the waterway, or deep holes that may have a tendency to [illegible] navigable channels or to the banks of the waterway shall [illegible] any pipe, wire, or cable hereby authorized is laid in a [illegible] formation of permanent ridges across the bed of the waterway [illegible] avoided and the backfilling shall be so done as not to increase [illegible] of future dredging for navigation. Any material to be deposited or dumped under this authorization shall be deposited or dumped at the locality shown on the drawings hereto attached, and, if so prescribed thereon, within or behind a retaining structure or structures which will prevent the return of the material to the waterway.

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(e) That the District Engineer may at any time make such inspections as he may deem necessary to assure that the work is performed in accordance with the conditions of this permit and all expenses thereof shall be borne by the permittee.

(f) That work under this permit may be suspended and/or the permit modified by authority of the Secretary of The Army if, after an evaluation of all relevant factors, it is determined that suspension and/or modification is in the general public interest.

(g) That this permit may be revoked by authority of the Secretary of The Army based upon significant changes in conditions occurring after issuance of this permit if, after an evaluation of the impact of such changes in conditions on the general public interest, the Secretary determines that revocation is in the general public interest.

ATTACHMENT A

(h) That the permittee, upon receipt of a notice to suspend work under this permit shall immediately cease work and shall not commence work again until so authorized in writing by the Secretary of The Army or his authorized representative.

(i) That the permittee, upon receipt of a notice of modification of this permit, shall alter the performance of the work authorized herein as directed by the Secretary of The Army or his authorized representative.

(j) That the permittee, upon receipt of a notice of revocation of this permit or upon its expiration, where the work authorized herein has not been completed, shall, without expense to the United States and in such time and manner as the Secretary of The Army or his authorized representative may require, cease all work and remove all or any part of the work as directed.

(k) That, if at any time after completion of the work authorized herein, the Secretary of The Army determines that the general public interest is adversely affected by deterioration of the work or by significant changes in conditions, the Secretary or his authorized representative may, by written notice, require the permittee, or its successor in interest, at its own expense, to restore the work to the condition prescribed herein or to remove all or any part of the work.

(l) That, if the permittee, or its successor in interest, is required by the Secretary of The Army or his authorized representative under any condition of this permit to remove all or any part of the work, and he fails to do so as required, the work may be removed by contract or otherwise and the cost thereof recovered from the permittee or its successor in interest.

(m) That any modification, suspension or revocation of this permit shall not be the basis for a claim against the United States.

(n) That the United States shall in no case be liable for any damage or injury to the structure or work herein authorized which may be caused by or result from future operations undertaken by the Government for the conservation or improvement of navigation, or for other purposes, and no claim or right to compensation shall accrue from any such damage.

(o) That no attempt shall be made by the permittee to forbid the full and free use by the public of all navigable waters at or adjacent to the work or structure authorized by this permit.

(p) That if the display of lights and signals on any work herein authorized is not otherwise provided for by law, such lights and signals as may be prescribed by the United States Coast Guard, shall be installed and maintained by and at the expense of the owner.

ATTACHMENT A

under [illegible] again until so authorized in writing by the Secretary of the Army or his authorized representative.

(i) That the permittee, upon receipt of a notice of modification of this permit, shall alter the performance of the work authorized herein as directed by the Secretary of The Army or his authorized representative.

(j) That the permittee, upon receipt of a notice of revocation of this permit or upon its expiration, where the work authorized herein has not been completed, shall, without expense to the United States and in such time and manner as the Secretary of The Army or his authorized representative may require, cease all work and remove all or any part of the work as directed.

(k) That, if at any time after completion of the work authorized herein, the Secretary of The Army determines that the general public interest is adversely affected by deterioration of the work or by significant changes in conditions, the Secretary or his authorized representative may, by written notice, require the permittee, or its successor in interest, at its own expense, to restore the work to the condition prescribed herein or to remove all or any part of the work.

(l) That, if the permittee, or its successor in interest, is required by the Secretary of The Army or his authorized representative under any condition of this permit to remove all or any part of the work, and he fails to do so as required, the work may be removed by contract or otherwise and the cost thereof recovered from the permittee [illegible] successor in interest.

(m) That any modification, suspension or revocation of this permit shall not be the basis for a claim against the United States.

(n) That the United States shall in no case be liable for any damage or injury to the structure or work herein authorized which may [illegible] caused by or result from future operations undertaken by the Government for the conservation or improvement of navigation, or for other purposes, and no claim or right to compensation shall accrue from any [illegible] damage.

(o) That no attempt shall be made by the permittee to forbid the [illegible] and free use by the public of all navigable waters at or adjacent [illegible] the work or structure authorized by this permit.

(p) That if the display of lights and signals on any work herein authorized is not otherwise provided for by law, such lights and signals as may be prescribed by the United States Coast Guard, shall be installed and maintained by and at the expense of the owner.

(q) That the permittee shall notify the District Engineer at what time the work will be commenced, and as far in advance of the time of commencement as the District Engineer may specify, and shall also notify him promptly, in writing, of the commencement of work, suspension of work, if for a period of more than one week, resumption of work, and its completion.

(r) That if the structure or work herein authorized is not completed on or before 31st day of December, 19 73, this permit, if not previously revoked or specifically extended, shall cease and be null and void.

(s) That the legal requirements of all Federal Agencies be met.

(t) That this permit does not authorize or approve the construction of particular structures, the authorization or approval of which may require action by the Congress or other agencies of the Federal Government.

This permit is also subject to the following special conditions:

ATTACHMENT A

him promptly, in writing, of the commencement of work, suspension of work, if for a period of more than one week, resumption of work, and its completion.

(r) That if the structure or work herein authorized is not completed on or before 31st day of December, 19 73, this permit, if not previously revoked or specifically extended, shall cease and be null and void.

(s) That the legal requirements of all Federal Agencies be met.

(t) That this permit does not authorize or approve the construction of particular structures, the authorization or approval of which may require action by the Congress or other agencies of the Federal Government.

This permit is also subject to the following special conditions:

ATTACHMENT A

Special Conditions:

(1) That the State of Oregon be provided with appropriate lands, satisfactory to the State, in exchange for the State's land management areas of Lemon, Government and McGuire Islands. Evidence of the Oregon State Game Commission's satisfaction will be furnished by the permittee in the form of a letter from that Commission to the Port of Portland.

(2) That all maintenance dredging to presently maintained depths of Airport and Government Island Bars (River Mile 110-114), shall be done under the general direction and approval of the Government ( U.S. Army Engineers, Portland District), on the following basis: The established 5-year average maintenance dredging is 150,000 c.y. per year; accordingly, the Government will be responsible for removal of 150,000 c.y. annually during all of the period from the year the Port's dredging project in this area commences, through the year it is completed, plus a period of 3 complete years thereafter. The Port will be responsible for all additional dredging above 150,000 c.y. annually during said periods of time and disposal of materials all without cost to the Government. Should the Port be subject to payments of royalty for materials removed, no part of such costs will be assumed by the Government. The Government will advise the Port approximately 90 days in advance of any maintenance dredging required in the areas involved by this permit.

(3) That the permittee agrees it shall make initial hydrographic and topographic surveys of the entire reach and breadth of the Columbia River between river miles 107 and 117.5 substantially in accordance with the methods outlined in the Port of Portland letter of 27 June 1969 to the Portland District Engineer. Arrangements for such surveys should be made as soon as possible so that they will be completed prior to the commencement of substantial work under this permit. Any work commenced prior to the completion and submission of these surveys must be authorized in advance by the District Engineer. The permittee further agrees to repeat the hydrographic and topographic surveys upon completion of all initial dredging performed in connection with this permit. The permittee agrees that the surveys shall extend approximately 100 feet landward of all river bank lines. Appropriate evidence of each type of survey, both initial and final, shall be promptly furnished to the District Engineer. This provision does not relieve the permittee of any of its other obligations under the permit.

(4) That the permittee agrees it shall not be relieved by this permit of responsibility for any damage which it may cause to property of others arising out of or resulting from the prosecution of the work herein authorized.

(5) That the permittee agrees to bear expenses incurred by the Government beyond the Government's statutory authority in investigating shoaling or erosion caused by the authorized work and in approving plans of repair therefor.

ATTACHMENT A

of Airport and Government Island Bars (River Mile 110-11[illegible]), shall be done under the general direction and approval of the Government ( U.S. Army Engineers, Portland District), on the following basis: The established 5-year average maintenance dredging is 150,000 c.y. per year; accordingly, the Government will be responsible for removal of 150,000 c.y. annually during all of the period from the year the Port's dredging project in this area commences, through the year it is completed, plus a period of 3 complete years thereafter. The Port will be responsible for all additional dredging above 150,000 c.y. annually during said periods of time and disposal of materials all without cost to the Government. Should the Port be subject to payments of royalty for materials removed, no part of such costs will be assumed by the Government. The Government will advise the Port approximately 90 days in advance of any maintenance dredging required in the areas involved by this permit.

(3) That the permittee agrees it shall make initial hydrographic and topographic surveys of the entire reach and breadth of the Columbia River between river miles 107 and 117.5 substantially in accordance with the methods outlined in the Port of Portland letter of 27 June 1969 to the Portland District Engineer. Arrangements for such surveys should be made as soon as possible so that they will be completed prior to the commencement of substantial work under this permit. Any work commenced prior to the completion and submission of these surveys must be authorized in advance by the District Engineer. The permittee further agrees to repeat the hydrographic and topographic surveys upon completion of all initial dredging performed in connection with this permit. The permittee agrees that the surveys shall extend approximately 100 feet landward of all river bank lines. Appropriate evidence of each type of survey, both initial and final, shall be promptly furnished to the District Engineer. This provision does not relieve the permittee of any of its other obligations under the permit.

(4) That the permittee agrees it shall not be relieved by this permit of responsibility for any damage which it may cause to property of others arising out of or resulting from the prosecution of the work herein authorized.

(5) That the permittee agrees to bear expenses incurred by the Government beyond the Government's statutory authority in investigating shoaling or erosion caused by the authorized work and in approving plans of repair therefor.

ATTACHMENT A

(6) That the permittee agrees it shall make every effort to preserve the aesthetics of the area involved. No existing trees or vegetation will be destroyed or disturbed unless necessary. The planting of vegetation on the fill area slopes riverward from the proposed relocation of Marine Drive, the proposed public park area, the proposed recreation area and that portion of McGuire Island which is to be exchanged for Sand Island shall be done in conformance with the General Development Plans presented at the public hearing held to consider the permit application, and with specific plans to be prepared by a registered Landscape Architect. These specific plans will be submitted to the District Engineer for approval by 1 August 1970. The planting and other landscape work will be completed by 1 August 1972.

(7) That the permittee agrees it will prosecute work authorized by this permit in a manner so as to minimize the degradation of water quality caused by turbidity and oxygen depletion. The permittee agrees to provide for fill construction that will provide sufficient settling time to properly clarify discharge water prior to its return to the river. Dredged material of mud and silt composition is to be placed within retaining structures constructed with clean sand.

(8) That the permittee shall comply promptly with any regulations, conditions, or instructions affecting the work hereby authorized if and when issued by the Federal Water Pollution Control Administration and/or the State water pollution control agency having jurisdiction to abate or prevent water pollution. Such regulations, conditions or instructions in effect or prescribed by the Federal Water Pollution Control Administration or State agency are hereby made a condition of this permit.

By authority of the Secretary of the Army:

Col. CE
District Engineer

Permittee hereby accepts the terms and conditions of this permit.

Permittee understands that failure to comply with all of the terms and conditions of this permit may result in its suspension or revocation.

Port of Portland
By Dennis Lindsay, President
Permittee Date: August 5, 1969

By:____________________

APPROVED AS TO FORM
____________________
of Counsel for The Port of Portland

ATTACHMENT A

plans to be prepared by a registered [illegible] plans will be submitted to the District Engineer for approval by 1 August 1970. The planting and other landscape work will be completed by 1 August 1972.

(7) That the permittee agrees it will prosecute work authorized by this permit in a manner so as to minimize the degradation of water quality caused by turbidity and oxygen depletion. The permittee agrees to provide for fill construction that will provide sufficient settling time to properly clarify discharge water prior to its return to the river. Dredged material of mud and silt composition is to be placed within retaining structures constructed with clean sand.

(8) That the permittee shall comply promptly with any regulations, conditions, or instructions affecting the work hereby authorized if and when issued by the Federal Water Pollution Control Administration and/or the State water pollution control agency having jurisdiction to abate or prevent water pollution. Such regulations, conditions or instructions in effect or prescribed by the Federal Water Pollution Control Administration or State agency are hereby made a condition of this permit.

By authority of the Secretary of the Army:

Col. CE
District Engineer

Permittee hereby accepts the terms and conditions of this permit.

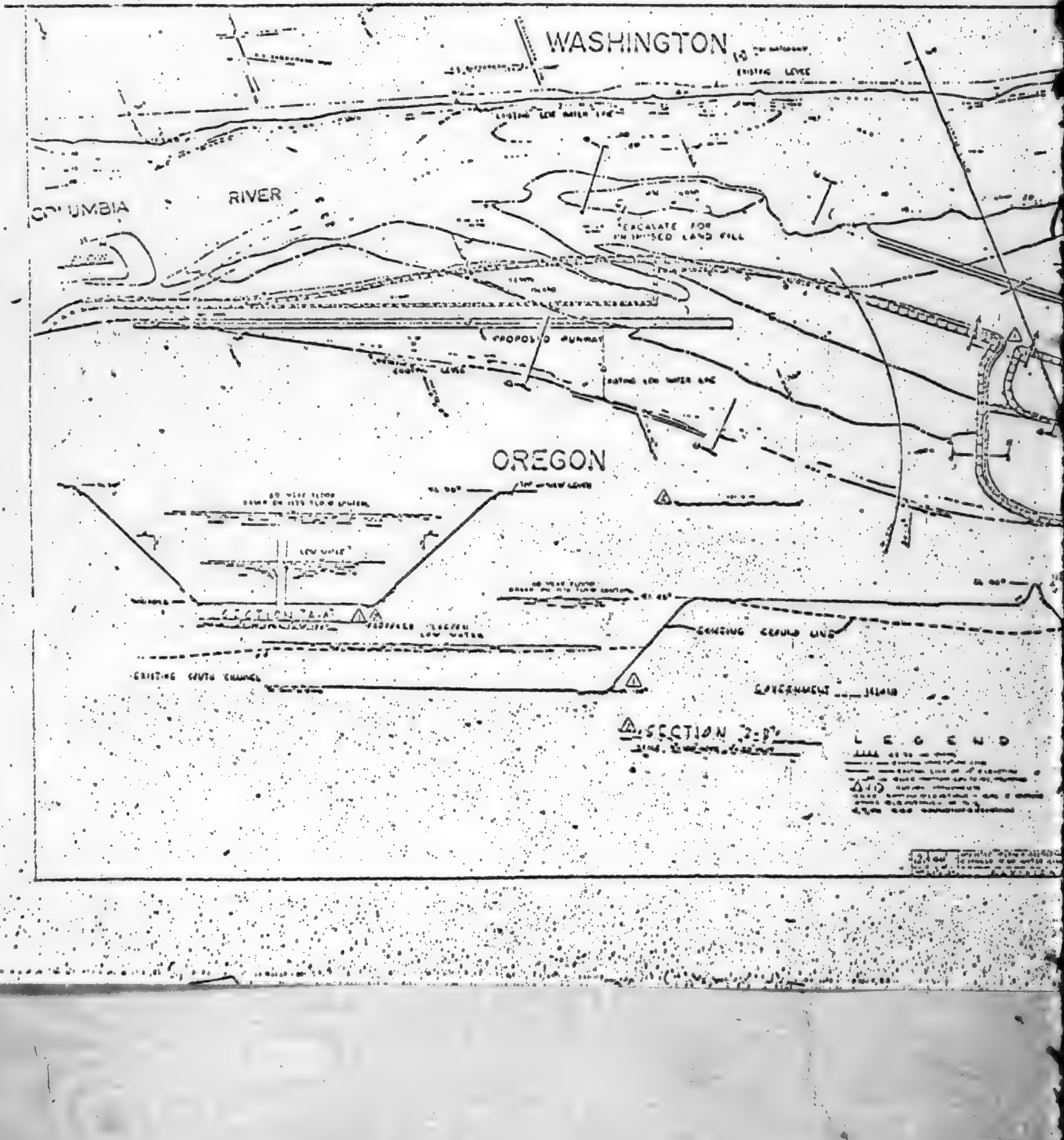
Permittee understands that failure to comply with all of the terms and conditions of this permit may result in its suspension or revocation.

Port of Portland
by Dennis Lindsay, President
Permittee Date: August 5, 1969

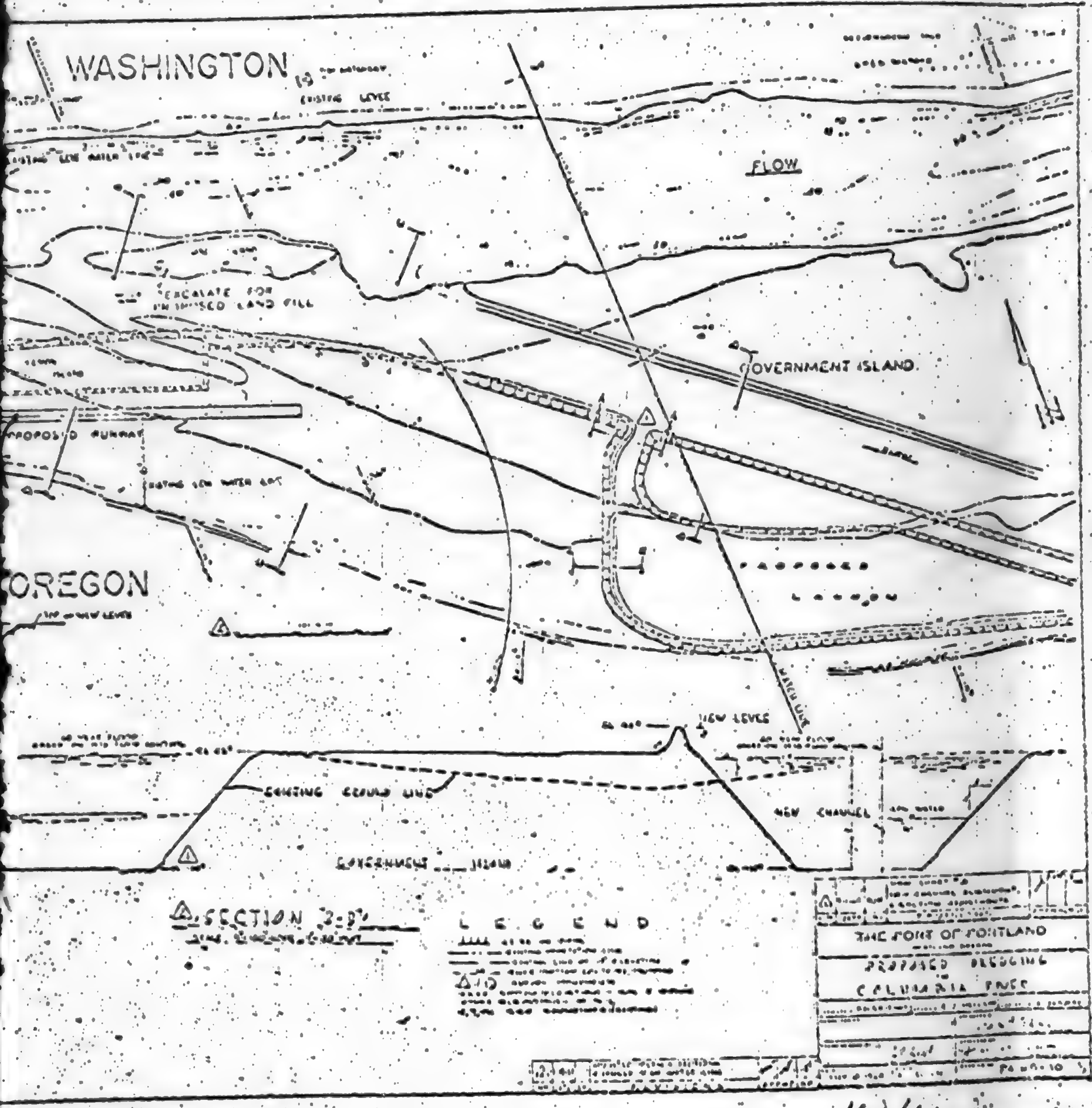
By:______________________

APPROVED AS TO FORM
______________________
of Counsel for The Port of Portland

ATTACHMENT A

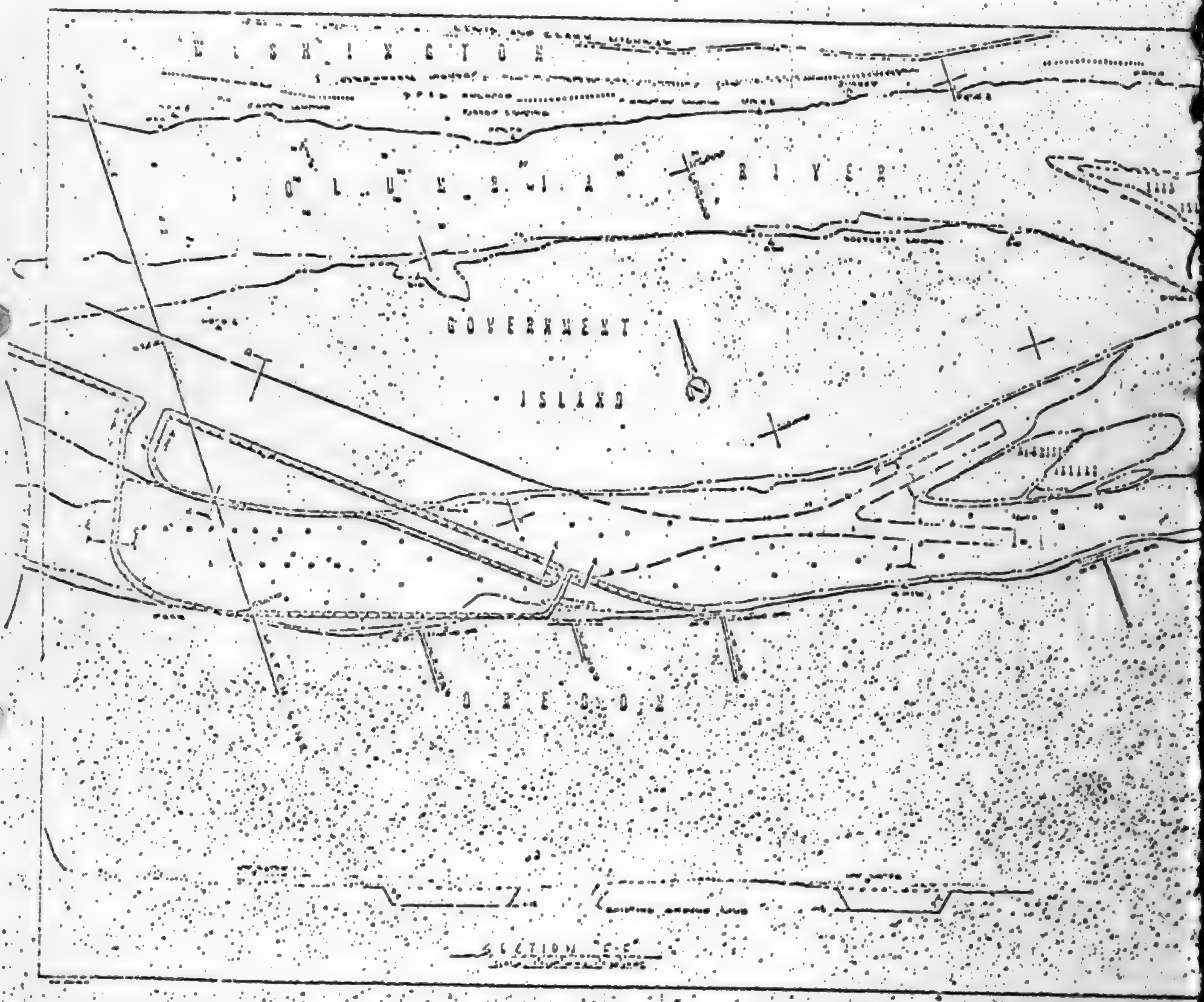


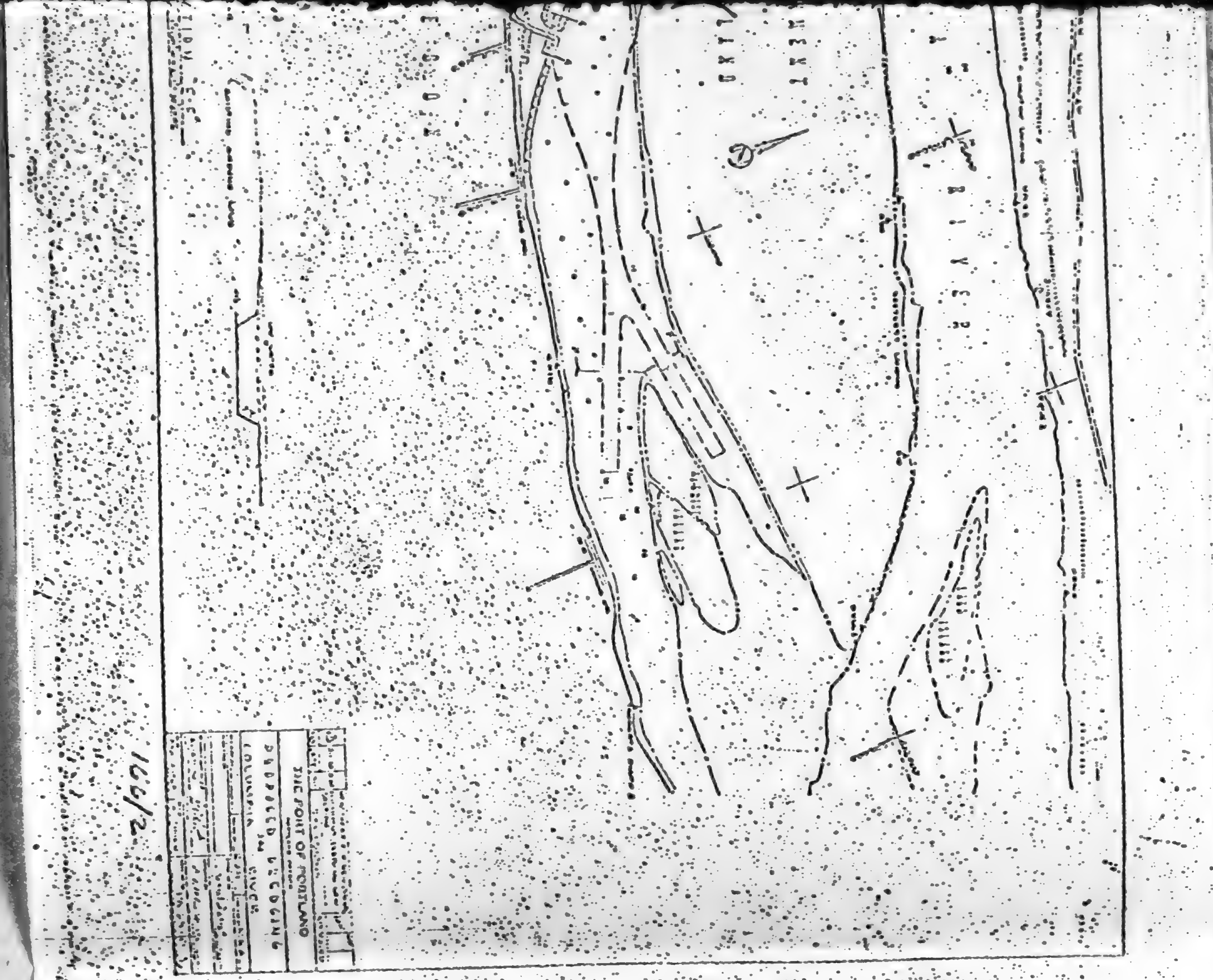
WASHINGTON
EXISTING LEVEE
EXISTING LOW WATER LINE
COLUMBIA
RIVER
EXCAVATE FOR
PROPOSED LAND FILL
PROPOSED RUNWAY
EXISTING LEVEE
EXISTING LOW WATER LINE
OREGON
LOW WATER
SECTION "A-A"
PROPOSED DREDGED LOW WATER
EXISTING GROUND LINE
EXISTING SOUTH CHANNEL
GOVERNMENT ISLAND
SECTION "B-B"
L E G E N D


WASHINGTON
EXISTING LEVEE
FLOW
EXCAVATE FOR UNFINISHED LAND FILL
GOVERNMENT ISLAND
PROPOSED RUNWAY
OREGON
NEW LEVEE
EXISTING GROUND LINE
NEW CHANNEL
GOVERNMENT ISLAND
SECTION
LEGEND
THE PORT OF PORTLAND
PROPOSED DREDGING
COLUMBIA RIVER

102/1

ATTACHMENT A


WASHINGTON
COLUMBIA RIVER
GOVERNMENT ISLAND
OREGON
SECTION E-E

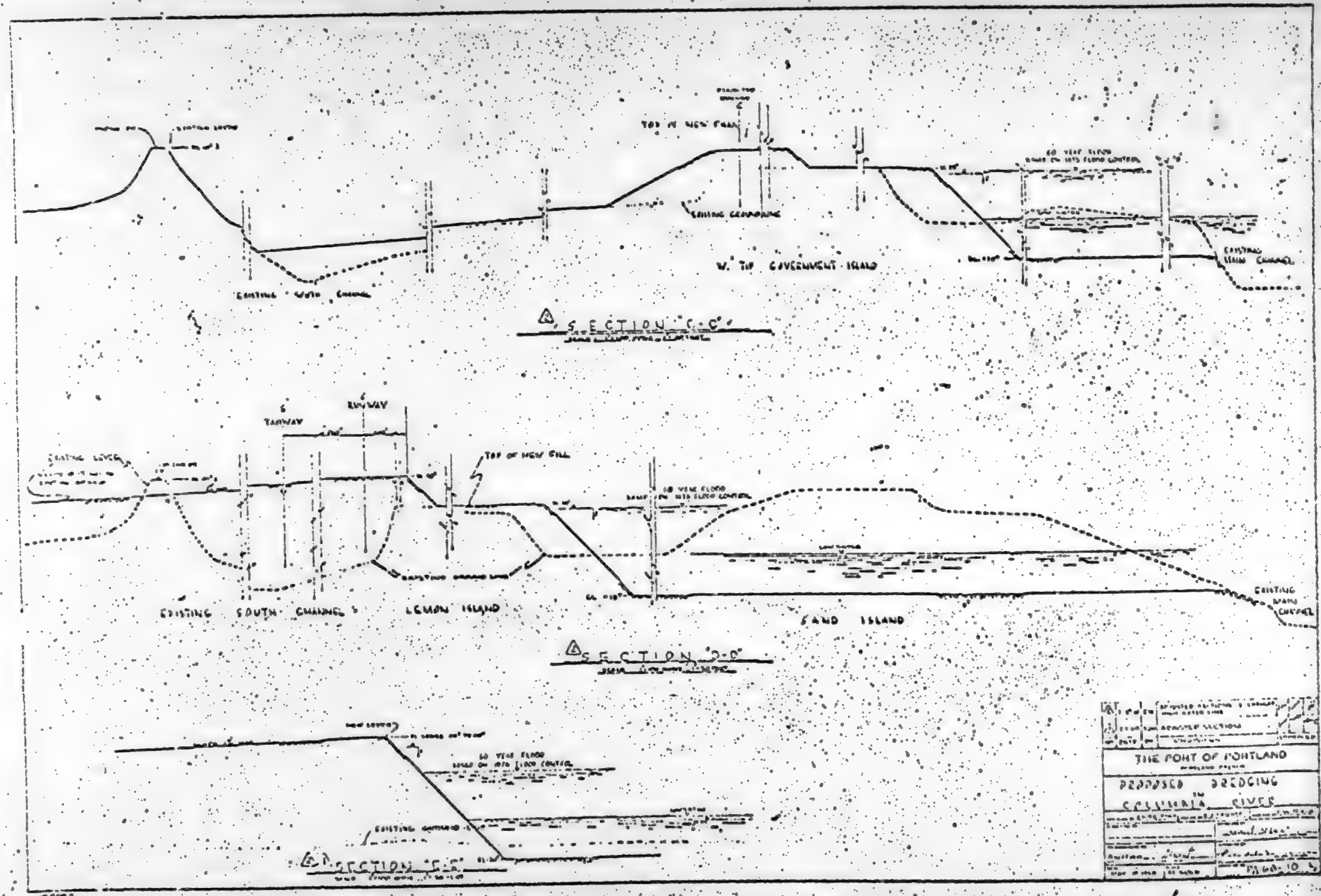


RIVER
THE PORT OF PORTLAND
PROPOSED DREDGING
COLUMBIA RIVER

166/2

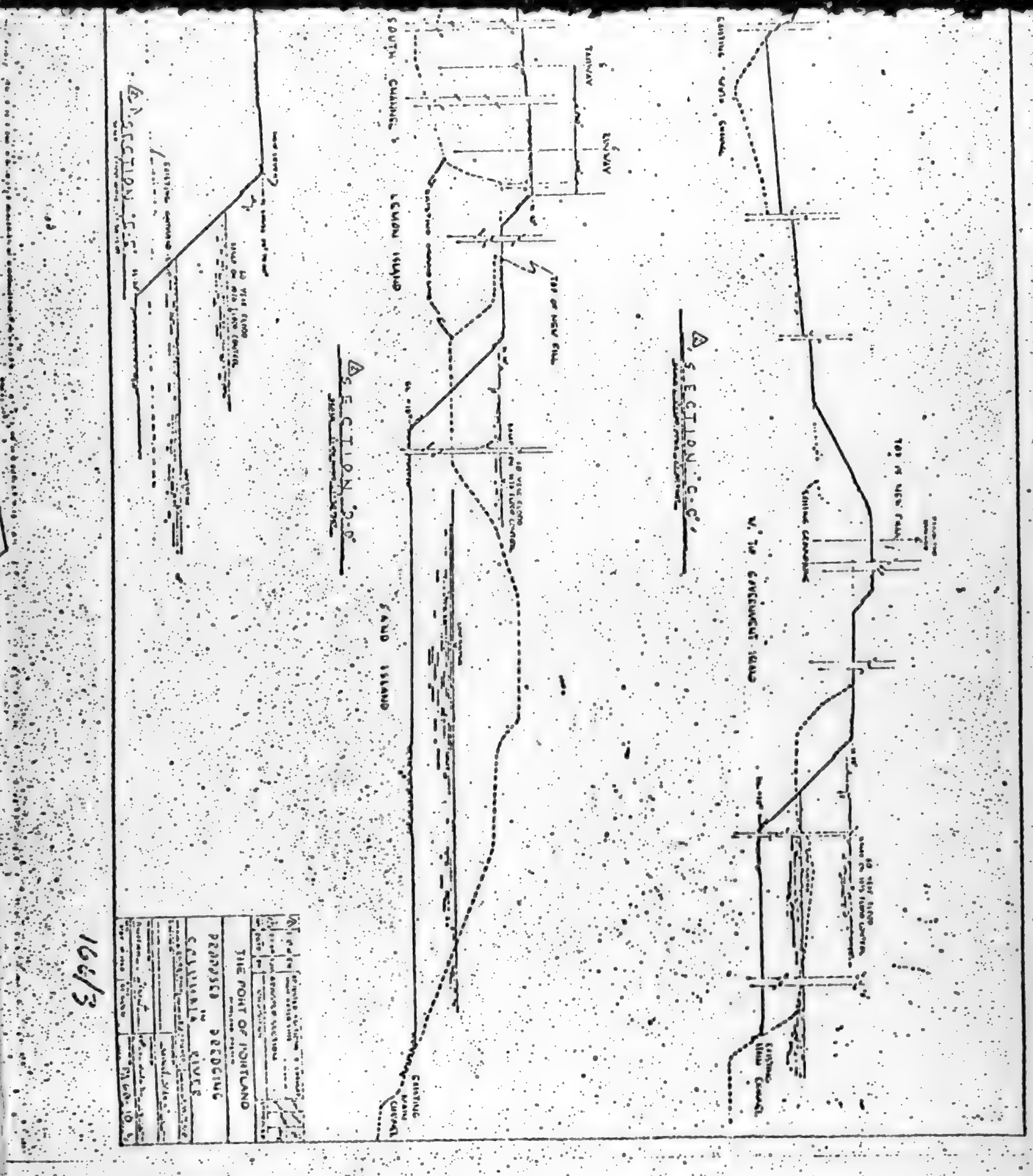
ATTACHMENT A

Comp. for Declar. Judgmt. & Inj. -21


TOP OF NEW FILL
EXISTING GROUNDLINE
EXISTING SOUTH CHANNEL
W. TIP GOVERNMENT ISLAND
50 YEAR FLOOD
EXISTING MAIN CHANNEL
SECTION C-C'
TAXIWAY
RUNWAY
EXISTING LEVEE
TOP OF NEW FILL
50 YEAR FLOOD
EXISTING SOUTH CHANNEL
LEMON ISLAND
SAND ISLAND
EXISTING MAIN CHANNEL
SECTION D-D'
NEW LEVEE
50 YEAR FLOOD
EXISTING GROUND
SECTION E-E'
REVISED SECTION
THE PORT OF PORTLAND
PROPOSED DREDGING
COLUMBIA RIVER

166/3

ATTACHMENT A


SECTION C-C'
SECTION
SOUTH CHANNEL & LEMON ISLAND
SAND ISLAND
TOP OF NEW FILL
EXISTING MAIN CHANNEL
THE PORT OF PORTLAND
PROPOSED DREDGING
COLUMBIA RIVER

166/3

ATTACHMENT A

8905

RECEIVED
SEP 1969

Form FHWA-121 (12-67)
UNITED STATES GOVERNMENT

FOR *Memorandum*

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
Bureau of Public Roads
Box 300
Salem OR 97308

DATE: August 28, 1969

In reply refer to: 08-35.1

TO : Mr. Forrest Cooper, State Highway Engineer
Salem, Oregon

FROM : R. E. Simpson, Division Engineer
Salem, Oregon

SUBJECT: Oregon Project I-205-7(-)312
Columbia River Crossing

The information submitted for clearance under paragraph 4f, Section 138, Title 23, U.S.C. has been referred to the Assistant Secretary for Environment and Urban Systems.

For your information in regard to a progress report, Mr. Braman, Deputy to the Assistant Secretary, has requested the following:

> "Since this raises several questions somewhat apart from the strictly environmental considerations, I would appreciate your having someone other than our environmental people determine whether or not the proposed highway can cross Government Island without conflict with the proposed airport expansion and to what extent the granting of the airport expansion, based on certain agreements made with elements of the Department of the Interior and of the State of Oregon, removes Government Island from consideration under 4(f).
>
> "Since we have already gone through the environmental matters with the Department of the Interior in regard to the airport expansion, it may be that this is no longer a factor and the only thing involved would be the mechanics of approval for this crossing.
>
> "After these findings are made we then can determine whether or not there still exists a requirement for action under Section 4(f)."

NOTED
FORREST COOPER

RECEIVED
AUG 29 1969
OFFICE OF
STATE HIGHWAY ENGINEER

BUY U.S. SAVINGS BONDS REGULARLY ON THE PAYROLL SAVINGS PLAN

August 13, 1969

BPR

Interstate 205, Columbia River
Crossing, Portland, Oregon

Assistant Secretary for Environment
and Urban Systems

Deputy Assistant Secretary for
Environment and Urban Systems

Attached hereto is a memorandum from the FHWA Administrator together with certain supporting material requesting clearance for the proposed crossing of the Columbia in the vicinity of the extended landing strip recently approved for the Portland, Oregon Airport.

Since this raises several questions somewhat apart from the strictly environmental considerations, I would appreciate your having someone other than our environmental people determine whether or not the proposed highway can cross Government Island without conflict with the proposed airport expansion and to what extent the granting of the airport expansion, based on certain agreements made with elements of the Department of the Interior and of the State of Oregon, removes Government Island from consideration under 4(f).

Since we have already gone through the environmental matters with the Department of the Interior in regard to the airport expansion, it maybe that this is no longer a factor and the only thing involved would be the mechanics of approval for this crossing.

After these findings are made we then can determine whether or not there still exist a requirement for action under Section 4(f).

ORIGINAL SIGNED BY
J.D. BRAMAN

J. D. Braman

cc:
Administrator, FHWA ✓
Administrator, FAA

NOTED
FORREST COOPER

RECEIVED
AUG 28 1969
OFFICE OF
STATE HIGHWAY ENGINEER

cc BPR + Holmes
8-15-69

AUG 12 1969

Mr. James D. Braman, Assistant Secretary
Office of the Assistant Secretary for
Urban Systems and Environment
Department of Transportation

, 34-30

F. C. Turner
Federal Highway Administrator

ACTION - I-205 - Columbia River Crossing - Portland, Oregon

It is our analysis that Section 4(f) clearance reportedly given by the Secretary for expansion of the Portland airport onto Government Island, a game managment area, will permit you to forego a separate finding for the I-205 crossing of the island. Your early confirmation will be appreciated.

Enclosures

Mr. Phillips, Regional FHWA ✓
Portland, Oregon
Mr. Simpson, Division Engr. (2)
Salem, Oregon

8905

9

RECEIVED
AUG 18 1969
FOR FILING

August 15, 1969

Mr. R. E. Simpson
Division Engineer
Bureau of Public Roads
Post Office Box 300
Salem, Oregon 97308

Dear Mr. Simpson:

Enclosed are one copy each of a permit dated August 5, 1969 covering the proposed Port of Portland airport development that the Port has obtained from the Corps of Engineers and two determinations or findings by the Federal Aviation Administration dated February 14, 1969 and July 24, 1969.

Some additional material is also enclosed which may or may not be of interest in the State's application for a corridor approval for I-205.

Very truly yours,

Forrest Cooper
State Highway Engineer

By

R. L. Porter
Deputy State Highway Engineer

RLP:mb
encs.

cc Forrest Cooper
Tom Edwards
F. B. Klaboe
Victor D. Wolfe

**COMMISSION**
DENNIS J. LINDSAY
President
LEE E. CALDWELL
Vice President
ERLING E. JACOBSEN
Secretary
ROBERT B. WILSON
Treasurer
LEW S. RUSSELL
HOWARD B. SOMERS
DONALD G. DRAKE
HAROLD S. HIRSCH
JOHN S. BRANDIS

GEORGE M. BALDWIN
General Manager

THE PORT OF PORTLAND

BOX 3529 PORTLAND, OREGON 97208 Telephone (503) 224-4260
Lindsay Building 710 S.W. 2nd Avenue

August 14, 1969

Mr. Forrest Cooper
State Highway Engineer
Oregon State Highway Department
Salem, Oregon 97310

Dear Mr. Cooper:

In accordance with our conversation of this morning, I am enclosing herewith a copy of the Corps of Engineers' dredge permit, a copy of the FAA basic approval dated February 14, 1969, and an FAA approval dated July 24, 1969. These are the only approvals that we had to secure directly prior to commencing the project.

I am also enclosing some other material which you may or may not already have and which may or may not be of interest. On a confidential basis, I am also enclosing a copy of a letter sent by Secretary Volpe to Senator Magnuson. With the exception of the letter to Senator Magnuson, you are free to use any of the other material any way you see fit.

Very truly yours,

George M Baldwin

George M. Baldwin
General Manager

GMB:mc
Enclosures

RECEIVED
AUG 15 1969
OFFICE OF
STATE HIGHWAY ENGINEER

A.J. Heineman

DEPARTMENT OF DEFENSE
UNITED STATES OF AMERICA

DEPARTMENT OF THE ARMY
PORTLAND DISTRICT, CORPS OF ENGINEERS
P. O. BOX 2946
PORTLAND, OREGON 97208

DEPARTMENT OF THE ARMY

PERMIT

Portland District, Corps of Engineers
5 August 1969

Port of Portland
Box 3529
Portland, Oregon 97208

Gentlemen:

Referring to written request dated 3 May 1968

Upon the recommendation of the Chief of Engineers, and under the provisions of Section 10 of the Act of Congress approved March 3, 1899, (33 USC 403) entitled "An act making appropriations for the construction, repair, and preservation of certain public works on rivers and harbors, and for other purposes," you are hereby authorized by the Secretary of the Army.

to dredge and fill

in the Columbia River Miles 110.1 to 117.5

near Portland, Oregon - Vancouver, Washington

in accordance with the plans shown on the drawings attached hereto, marked 1507-27(Columbia River-Dredging)-166/1, 166/2, 166/3 and other plans as hereinafter prescribed subject to the following conditions:

(a) That this instrument does not convey any property rights either in real estate or material, or any exclusive privileges; and that it does not authorize any injury to private property or invasion of private rights, or any infringement of Federal, State, or local laws or regulations, nor does it obviate the necessity of obtaining State or local assent required by law for the work authorized.

(b) That the work authorized herein shall be subject to the supervision and approval of the District Engineer, Corps of Engineers, in charge of the District in which the work is to be performed.

(c) That any material dredged in the prosecution of the work herein authorized shall be removed evenly and no large refuse piles, ridges across the bed of the waterway, or deep holes that may have a tendency to cause injury to navigable channels or to the banks of the waterway shall be left. If any pipe, wire, or cable hereby authorized is laid in a trench, the formation of permanent ridges across the bed of the waterway shall be avoided and the backfilling shall be so done as not to increase the cost of future dredging for navigation. Any material to be deposited or dumped under this authorization shall be deposited or dumped at the locality shown on the drawings hereto attached, and, if so prescribed thereon, within or behind a retaining structure or structures which will prevent the return of the material to the waterway.

(d) That the work authorized herein shall be performed in a manner so as not to adversely affect the general public interest. Factors affecting the general public interest include, but are not limited to, navigation, fish and wildlife, water quality, conservation, aesthetics and ecology.

(e) That the District Engineer may at any time make such inspections as he may deem necessary to assure that the work is performed in accordance with the conditions of this permit and all expenses thereof shall be borne by the permittee.

(f) That work under this permit may be suspended and/or the permit modified by authority of the Secretary of The Army if, after an evaluation of all relevant factors, it is determined that suspension and/or modification is in the general public interest.

(g) That this permit may be revoked by authority of the Secretary of The Army based upon significant changes in conditions occurring after issuance of this permit if, after an evaluation of the impact of such changes in conditions on the general public interest, the Secretary determines that revocation is in the general public interest.

(h) That the permittee, upon receipt of a notice to suspend work under this permit shall immediately cease work and shall not commence work again until so authorized in writing by the Secretary of The Army or his authorized representative.

(i) That the permittee, upon receipt of a notice of modification of this permit, shall alter the performance of the work authorized herein as directed by the Secretary of The Army or his authorized representative.

(j) That the permittee, upon receipt of a notice of revocation of this permit or upon its expiration, where the work authorized herein has not been completed, shall, without expense to the United States and in such time and manner as the Secretary of The Army or his authorized representative may require, cease all work and remove all or any part of the work as directed.

(k) That, if at any time after completion of the work authorized herein, the Secretary of The Army determines that the general public interest is adversely affected by deterioration of the work or by significant changes in conditions, the Secretary or his authorized representative may, by written notice, require the permittee, or its successor in interest, at its own expense, to restore the work to the condition prescribed herein or to remove all or any part of the work.

(l) That, if the permittee, or its successor in interest, is required by the Secretary of The Army or his authorized representative under any condition of this permit to remove all or any part of the work, and he fails to do so as required, the work may be removed by contract or otherwise and the cost thereof recovered from the permittee or its successor in interest.

(m) That any modification, suspension or revocation of this permit shall not be the basis for a claim against the United States.

(n) That the United States shall in no case be liable for any damage or injury to the structure or work herein authorized which may be caused by or result from future operations undertaken by the Government for the conservation or improvement of navigation, or for other purposes, and no claim or right to compensation shall accrue from any such damage.

(o) That no attempt shall be made by the permittee to forbid the full and free use by the public of all navigable waters at or adjacent to the work or structure authorized by this permit.

(p) That if the display of lights and signals on any work herein authorized is not otherwise provided for by law, such lights and signals as may be prescribed by the United States Coast Guard, shall be installed and maintained by and at the expense of the owner.

(q) That the permittee shall notify the District Engineer at what time the work will be commenced, and as far in advance of the time of commencement as the District Engineer may specify, and shall also notify him promptly, in writing, of the commencement of work, suspension of work, if for a period of more than one week, resumption of work, and its completion.

(r) That if the structure or work herein authorized is not completed on or before 31st day of December, 1973, this permit, if not previously revoked or specifically extended, shall cease and be null and void.

(s) That the legal requirements of all Federal Agencies be met.

(t) That this permit does not authorize or approve the construction of particular structures, the authorization or approval of which may require action by the Congress or other agencies of the Federal Government.

This permit is also subject to the following special conditions:

Special Conditions:

(1) That the State of Oregon be provided with appropriate lands, satisfactory to the State, in exchange for the State's land management areas of Lemon, Government and McGuire Islands. Evidence of the Oregon State Game Commission's satisfaction will be furnished by the permittee in the form of a letter from that Commission to the Port of Portland.

(2) That all maintenance dredging to presently maintained depths of Airport and Government Island Bars (River Mile 110-114), shall be done under the general direction and approval of the Government ( U.S. Army Engineers, Portland District), on the following basis: The established 5-year average maintenance dredging is 150,000 c.y. per year; accordingly, the Government will be responsible for removal of 150,000 c.y. annually during all of the period from the year the Port's dredging project in this area commences, through the year it is completed, plus a period of 3 complete years thereafter. The Port will be responsible for all additional dredging above 150,000 c.y. annually during said periods of time and disposal of materials all without cost to the Government. Should the Port be subject to payments of royalty for materials removed, no part of such costs will be assumed by the Government. The Government will advise the Port approximately 90 days in advance of any maintenance dredging required in the areas involved by this permit.

(3) That the permittee agrees it shall make initial hydrographic and topographic surveys of the entire reach and breadth of the Columbia River between river miles 107 and 117.5 substantially in accordance with the methods outlined in the Port of Portland letter of 27 June 1969 to the Portland District Engineer. Arrangements for such surveys should be made as soon as possible so that they will be completed prior to the commencement of substantial work under this permit. Any work commenced prior to the completion and submission of these surveys must be authorized in advance by the District Engineer. The permittee further agrees to repeat the hydrographic and topographic surveys upon completion of all initial dredging performed in connection with this permit. The permittee agrees that the surveys shall extend approximately 100 feet landward of all river bank lines. Appropriate evidence of each type of survey, both initial and final, shall be promptly furnished to the District Engineer. This provision does not relieve the permittee of any of its other obligations under the permit.

(4) That the permittee agrees it shall not be relieved by this permit of responsibility for any damage which it may cause to property of others arising out of or resulting from the prosecution of the work herein authorized.

(5) That the permittee agrees to bear expenses incurred by the Government beyond the Government's statutory authority in investigating shoaling or erosion caused by the authorized work and in approving plans of repair therefor.

(6) That the permittee agrees it shall make every effort to preserve the aesthetics of the area involved. No existing trees or vegetation will be destroyed or disturbed unless necessary. The planting of vegetation on the fill area slopes riverward from the proposed relocation of Marine Drive, the proposed public park area, the proposed recreation area and that portion of McGuire Island which is to be exchanged for Sand Island shall be done in conformance with the General Development Plans presented at the public hearing held to consider the permit application, and with specific plans to be prepared by a registered Landscape Architect. These specific plans will be submitted to the District Engineer for approval by 1 August 1970. The planting and other landscape work will be completed by 1 August 1972.

(7) That the permittee agrees it will prosecute work authorized by this permit in a manner so as to minimize the degradation of water quality caused by turbidity and oxygen depletion. The permittee agrees to provide for fill construction that will provide sufficient settling time to properly clarify discharge water prior to its return to the river. Dredged material of mud and silt composition is to be placed within retaining structures constructed with clean sand.

(8) That the permittee shall comply promptly with any regulations, conditions, or instructions affecting the work hereby authorized if and when issued by the Federal Water Pollution Control Administration and/or the State water pollution control agency having jurisdiction to abate or prevent water pollution. Such regulations, conditions or instructions in effect or prescribed by the Federal Water Pollution Control Administration or State agency are hereby made a condition of this permit.

By authority of the Secretary of the Army:

Col CE
District Engineer

Permittee hereby accepts the terms and conditions of this permit.

Permittee understands that failure to comply with all of the terms and conditions of this permit may result in its suspension or revocation.

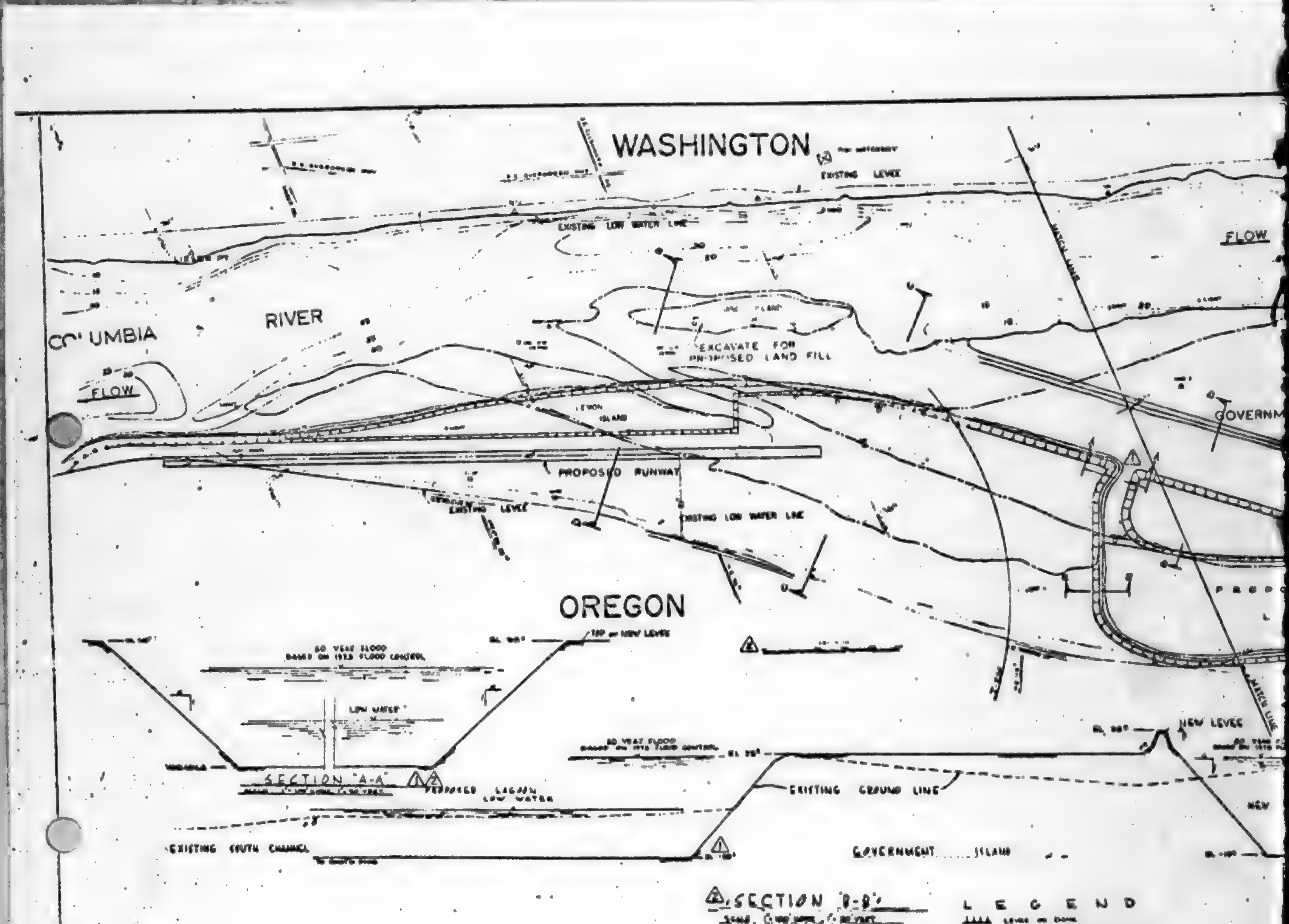
Port of Portland.
by [illegible] President

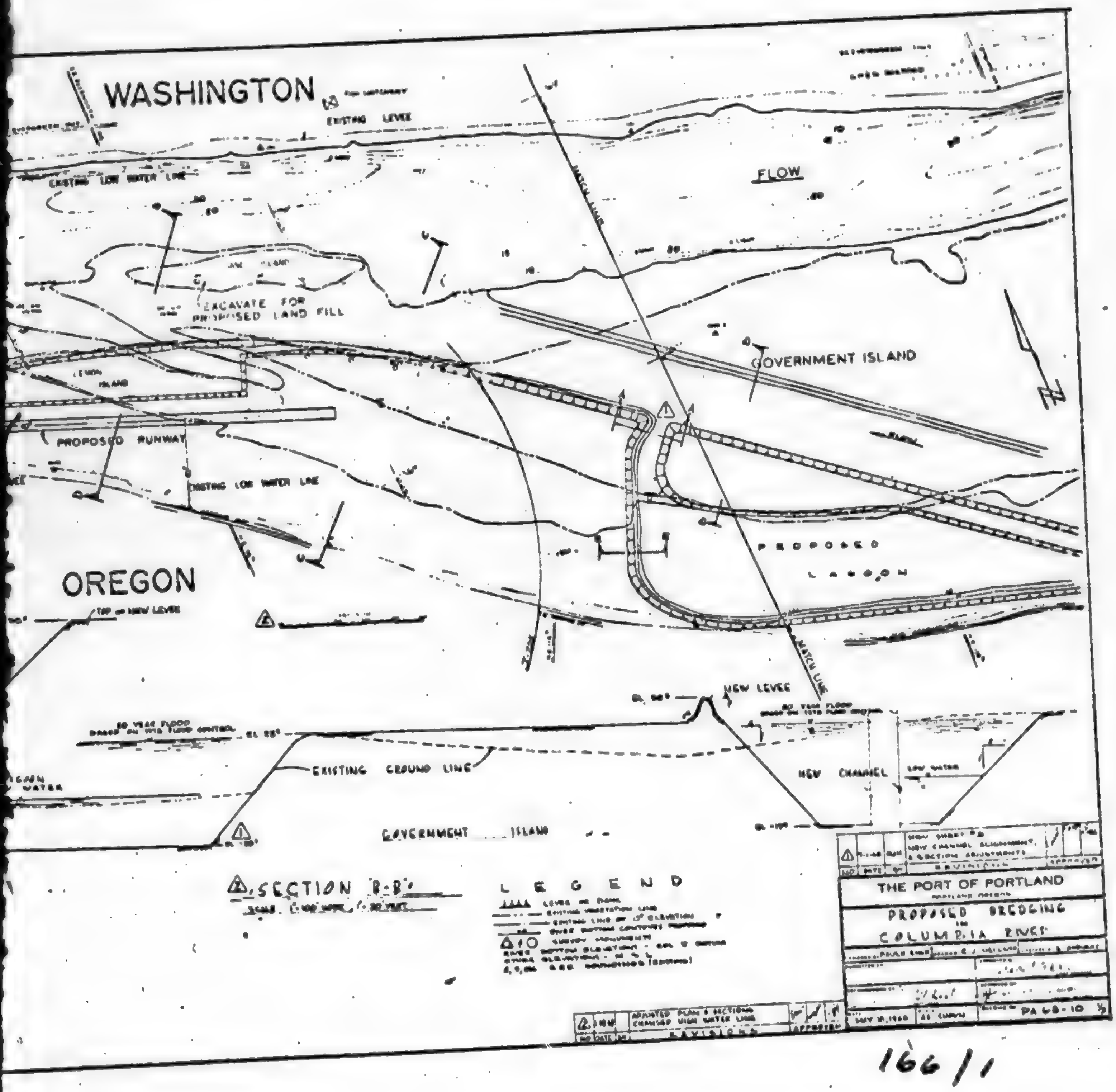
Permittee
Date: August 5, 1969

By:____________________________

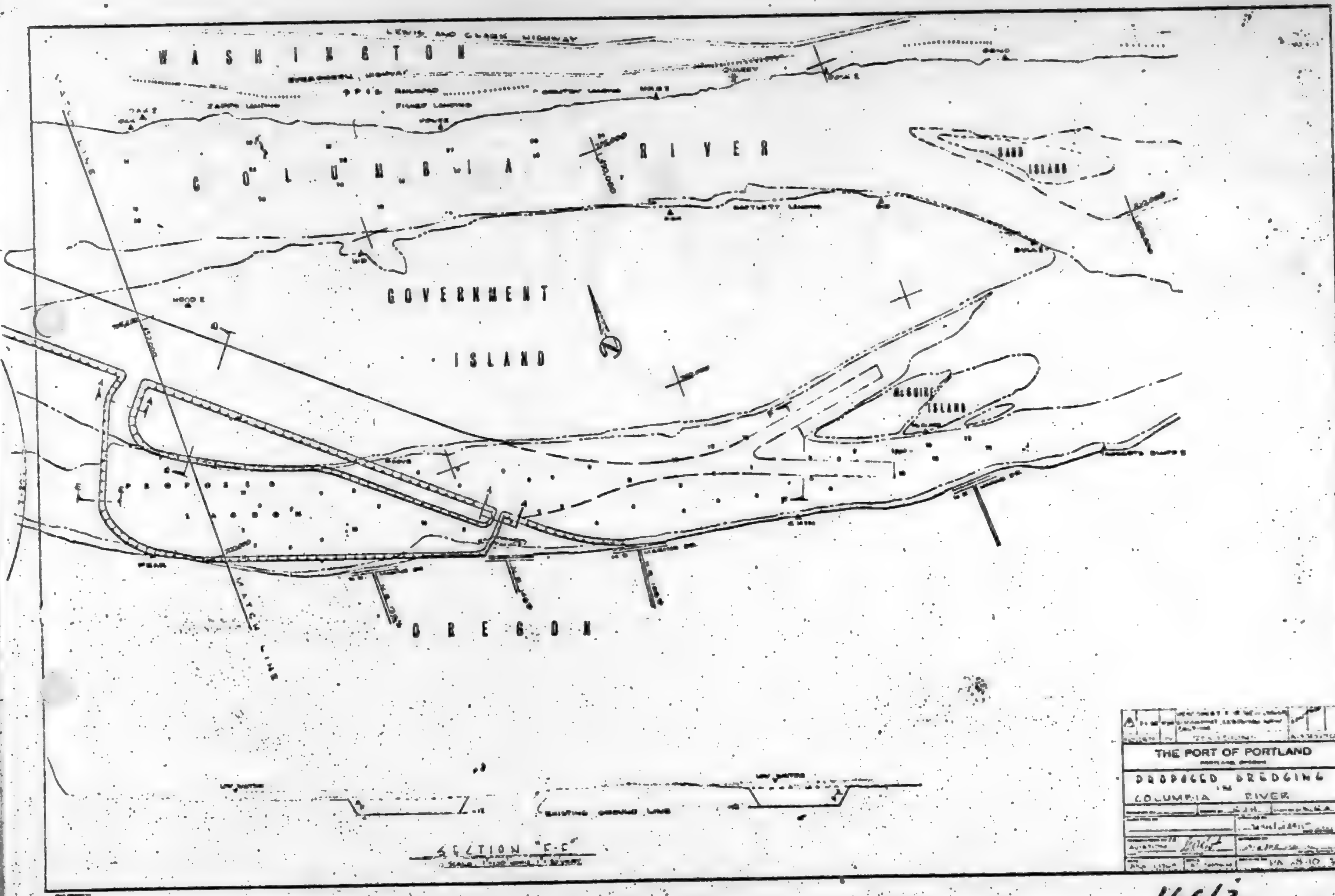
APPROVED AS TO FORM

of Counsel for The Port of Portland


WASHINGTON
EXISTING LEVEE
EXISTING LOW WATER LINE
FLOW
COLUMBIA
RIVER
FLOW
EXCAVATE FOR PROPOSED LAND FILL
LEMON ISLAND
PROPOSED RUNWAY
EXISTING LEVEE
EXISTING LOW WATER LINE
GOVERNM
OREGON
50 YEAR FLOOD BASED ON 1933 FLOOD CONTROL
TOP OF NEW LEVEE
LOW WATER
SECTION "A-A"
PROPOSED LAGOON LOW WATER
EXISTING SOUTH CHANNEL
50 YEAR FLOOD
NEW LEVEE
EXISTING GROUND LINE
GOVERNMENT ISLAND
SECTION "B-B"
LEGEND
LEVEE OR DIKE
EXISTING VEGETATION LINE
ADJUSTED PLAN & SECTIONS
CHANGED LOW WATER LINE
REVISIONS
APPROVED


WASHINGTON
EXISTING LEVEE
EXISTING LOW WATER LINE
FLOW
EXCAVATE FOR PROPOSED LAND FILL
LEMON ISLAND
GOVERNMENT ISLAND
PROPOSED RUNWAY
EXISTING LOW WATER LINE
PROPOSED LAGOON
OREGON
MATCH LINE
NEW LEVEE
EXISTING GROUND LINE
NEW CHANNEL
LOW WATER
GOVERNMENT ISLAND
SECTION B-B'
L E G E N D
NEW SHEET #2 NEW CHANNEL ALIGNMENT, & SECTION ADJUSTMENTS
REVISIONS
APPROVED
THE PORT OF PORTLAND
PORTLAND OREGON
PROPOSED DREDGING IN COLUMBIA RIVER
MAY 19, 1960
AS SHOWN
PA 68-10
1/2
ADJUSTED PLAN & SECTIONS CHANGED HIGH WATER LINE
REVISIONS
APPROVED

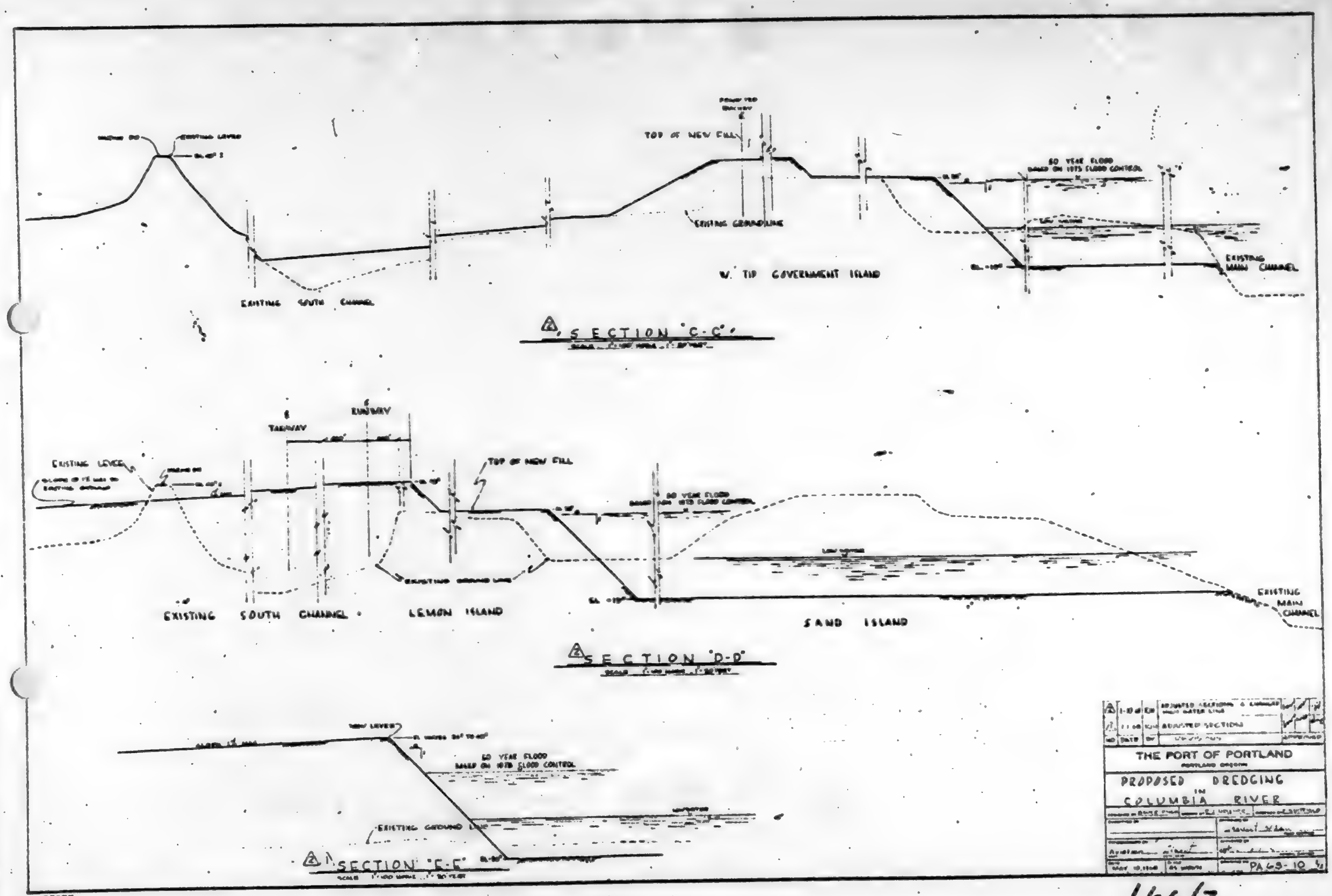
166/1


LEWIS AND CLARK HIGHWAY
WASHINGTON
EVERGREEN HIGHWAY
S.P.&S. RAILROAD
COLUMBIA RIVER
SAND ISLAND
GOVERNMENT ISLAND
McGUIRE ISLAND
PROPOSED LAGOON
MATCH LINE
OREGON
EXISTING GROUND LINE
SECTION "E-E"

THE PORT OF PORTLAND
PORTLAND OREGON

PROPOSED DREDGING IN COLUMBIA RIVER

166/2


EXISTING LEVEE
TOP OF NEW FILL
50 YEAR FLOOD BASED ON 1973 FLOOD CONTROL
EXISTING GROUNDLINE
W. TIP GOVERNMENT ISLAND
EXISTING SOUTH CHANNEL
EXISTING MAIN CHANNEL
SECTION "C-C'"
TAXIWAY
RUNWAY
EXISTING LEVEE
TOP OF NEW FILL
50 YEAR FLOOD BASED ON 1973 FLOOD CONTROL
EXISTING GROUND LINE
LOW WATER
EXISTING SOUTH CHANNEL
LEMON ISLAND
SAND ISLAND
EXISTING MAIN CHANNEL
SECTION "D-D'"
NEW LEVEE
50 YEAR FLOOD BASED ON 1973 FLOOD CONTROL
EXISTING GROUND LINE
SECTION "E-E'"

| NO | DATE | BY | REVISIONS | APPROVED |
|---|---|---|---|---|
| 2 | 1-10-69 | EH | ADJUSTED SECTIONS & CHANGED HIGH WATER LINE | |
| 1 | | | ADJUSTED SECTION | |

THE PORT OF PORTLAND
PORTLAND OREGON

PROPOSED DREDGING
IN
COLUMBIA RIVER

PA 69-10

166/3

~~08-240.04~~
08-230

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

SEATTLE AREA OFFICE
FAA BUILDING, BOEING FIELD
SEATTLE, WASHINGTON 98108

RECEIVED
JUL 23 1969
THE PORT OF PORTLAND

24 July 1969

Mr. George M. Baldwin, General Manager
The Port of Portland
P. O. Box 3529
Portland, Oregon 97208

Subject: Portland International Airport; Portland, Oregon; Findings Relative to Section 4(f) Department of Transportation Act

Dear Mr. Baldwin:

Coordination of the preliminary Airport Layout Plan of Portland International Airport has now been completed by all interested departments of the Federal government. This coordination includes in particular, provisions pertaining to Section 4(f) of the Department of Transportation Act.

It is a pleasure that we can advise you that the basic concept of the proposed expansion of the Portland International Airport as shown on the Preliminary Airport Plan dated 3 April 1969 is hereby approved. This approval is with the understanding that certain details of the Airport Layout Plan still require resolution. These details were sent to you in our letter of 28 April 1969.

After the comments of the 28 April 1969 letter have been satisfactorily complied with we are ready to approve the complete Airport Layout Plan. As you probably recall in our latest comments I believe we already had a meeting of minds on most points. The question of runway-taxiway and taxiway-taxiway separations parallel to Runway 9L/27R was again fully reviewed by all FAA offices concerned. We have concluded that 600 feet runway-taxiway separation, and 400 feet for taxiway-taxiway separation is necessary to accommodate safely and efficiently aircraft using your airport in the foreseeable future.

We recommend that your engineers and planners complete the Layout Plan at the earliest possible date and submit seven copies for our final approval.

Sincerely,

Hans J. Sperber

HANS J. SPERBER
Chief, Airports Branch, SEA-600
Oregon and Washington

| | Action | Info |
|---|---|---|
| Gen. Mgr. | | X |
| Asst. Gen. Mgr. | | X |
| Attorney | | |
| Spec. Projects | | X |
| Public Affairs | | |
| Aviation | 2 | |
| Finance/Admin. | | |
| Ind. Devel. | | X |
| Marine | | X |
| Technical Serv. | | X |
| E.R. ARNOLD | | |
| | | |
| No. of Copies 7 | | |

aJH

March 24, 1969

Mr. Robert O. Blanchard
Federal Aviation Administration
Boeing Field
Seattle, Washington 98108

Dear Mr. Blanchard:

Reference is made to your letter of March 18, 1969, requesting information to assist you in assessing the applicability of Section 4 (f) of the Department of Transportation Act to our proposed development of Portland International Airport.

From the outset it was realized by The Port of Portland that the key to our proposed expansion was a solution to any hydraulic problems resulting from closure of the south channel. Preliminary feasibility of doing this was established by staff investigations of the proposal. As you may know, massive changes in width, alignment and location of both the Willamette and Columbia rivers have been made in the past 100 years and The Port of Portland has participated in the planning and engineering design or construction of many of them.

The Port selected the consulting engineering firm of Bauer Engineering Company to make this investigation. The investigation was headed up by Dr. William Bauer, president of the firm, whose experience with open channel hydraulics problems encompasses both the theoretical and practical aspects of fluvial hydraulics. We placed no constraints on his study either as to the study method or the expense of his recommended solutions. To us, the paramount objective was to properly define the problem and design a solution for it. Dr. Bauer's letter of April 19, 1968 (copy attached) is a clear statement of his findings. To our knowledge, the only professional engineer outside of our staff, and the Corps of Engineers, to evaluate Dr. Bauer's work is Dr. Roy Tinney, then of Washington State University, and now employed by the government of Canada to plan their water development program for the future. His letter is attached.

Our records indicate only three contacts have been made by private owners on the Washington shore to The Port of Portland. They are:

1. Mr. Stanley Bishoprick, whose house and land fronts the river, discussed the project with a Port of Portland engineer.

2. Dr. Carl Petterson, whose house and land fronts the river, participated in the above discussion. In addition, a Port of Portland engineer made a site inspection of the reach, accompanied by Dr. Petterson.

3. The owner of Lieser Point moorage requested, and was given, a chart showing the proposed relocation.

At no time have the above-named, or any other Washington shore resident, specifically said what the adverse effects of this project would be to their property or recommended a means of mitigating any alleged damage.

This office does not have a complete list of ownerships on the north shore. The area adjacent to the project is developed for homesites with generally large land areas for each home.

There is no known public ownership along the Washington shore in the area affected by the proposed channel change. The city of Vancouver, Washington owns an area downstream from the project which will not be affected by our plan.

County records indicate that the only land in public ownership along the south shore is owned by The Port of Portland, except the Multnomah County boat ramp at 42nd Avenue and the waterfront at the end of county roads. The land for the ramp was donated to the county by The Port of Portland. The project will have no effect on the county boat ramp area.

Some of the owners on the Oregon shore downstream from the area affected by our proposed channel change have expressed concern regarding increased shoaling. They have been continually plagued by shoaling in the moorages in the past. Dr. Bauer has indicated that our proposal will have no effect on these areas. It is anticipated that a survey program will be placed in effect to observe this area during and after our dredging program.

Very early in our investigation of the proposal to dredge through Government Island, contact was made with the boating interests using the south shore and the owners of the islands to be affected by our program. Actually, the contact was made nearly two months before our proposal became public knowledge. The Port was deeply concerned regarding the effect that this might have on the present uses and wanted the best information available in order to adapt our proposal to provide an improvement to present conditions. From the comments received, we believe we have accomplished this.

Attached is list of ownerships along the south shore in the area to be affected by our proposed expansion. In those areas which are not presently owned by The Port of Portland where fill is required along the shore, it will be necessary to purchase the property. In the cases where the private property is developed as a moorage, alternate sites will be offered for re-establishing the moorages upstream and downstream from the proposed fill area. It is anticipated that the Port will acquire nearly all the waterfront from 47th to 158th in order to institute a well-planned waterfront development.

In the case of the home sites in the vicinity of 138th, no change is proposed as was pointed out in a public meeting on February 21, 1968, in which all questions from residents in the area affected were answered. The residents pointed out that they presently live under the flight path of the north runway and were not concerned about our program so long as their homes can remain along Marine Drive facing the waterfront. The Port would agree to purchase any homesites offered at fair market value.

The diversion of the back channel through Government Island provides an opportunity to improve the recreation area adjacent to PIA. You will note that a very large bay will be created as a result of this diversion, providing a slack-water boat harbor which is not presently available in this area. The Federal Government has expended tremendous sums of money in all parts of the United States to aid local governments in providing this type of facility. In this case it becomes a byproduct of the airport construction with only minimum local funds required to complete the moorage amenities required. The present moorages along Marine Drive adjacent to the airport are faced with continuous problems of shoaling, debris damage, and shallow water. This program will provide an area for the moorages which will be completely free of these hazards and costly maintenance. The present areas, which are almost inaccessible to the public due to lack of parking and roadway access, will be replaced by usable sloping beaches with full access by roads.

An area in the vicinity of I-205 will become a public park area. It is proposed that this area will be developed by a public agency such as Multnomah County or the Oregon State Highway Department. Final arrangements for this have not been made to date.

The following is a comparison of the recreational areas resulting from the proposed plan:

| Item | Existing | Proposed | Change |
|---|---|---|---|
| 1. Lineal Feet of Waterfront | 131,000 | 119,000 | 12,000 less |
| 2. Lineal Feet of Developed Beach Accessible by Auto | 25,000 | 39,000 | 14,000 more |
| 3. Number of Moorage Slips | 789 | 3,370 | 2,581 more |
| 4. Boat Ramps | 5 lanes | 11 lanes | 6 lanes more |
| 5. Park and Picnic Areas | None | 22 acres | 22 acres more |
| 6. Miles of Scenic Drive | 5.7 miles | 6.4 miles | .7 mile more |
| 7. Boat Anchorage (Water Area) | 45 acres* | 80 acres** | 35 acres more |
| 8. Swimming Beaches | None | 3,000 L.F. | 3,000 L.F. more |
| 9. Usable Water Surface in Project Area | 730 acres | 827 acres | 97 acres more |

---

* Tri-Club Island anchorage
** Proposed McGuire Island anchorage

The three islands affected by the proposed dredging are Lemon, Tri-Club (Sand Island), and Government islands. Tri-Club Island is owned by Tri-Club Island, Inc., having a membership of four yacht clubs. The attached statement by Mr. William Moran, made at the FAA hearing, explains our arrangements with that organization for acquiring Tri-Club

Island which will be removed completely by the dredging. Lemon Island and all of the portion of Government Island affected by the dredging are owned by the Oregon State Game Commission except for one small parcel of about one acre (former school site) owned by the Bureau of Land Management.

The Bureau of Land Management has advised us that the parcel they own may be acquired by The Port of Portland after approval of our program. The land is presently under special use agreement to the Oregon State Game Commission.

Government Island is used as a game management area by the Oregon State Game Commission and is a part of the Sauvie Island game management area. Their operation provides for lease of the property to a tenant who raises cattle and, in exchange, provides certain planted area for feeding of wildlife. In addition to this use, the beaches where gentle slopes are available are used by recreational boaters. This activity is concentrated primarily on the downstream end of Government Island and adjacent to Lemon Island. This recreation is the only known use of Lemon Island.

Total ownership of the Oregon State Game Commission is approximately 2,000 acres, a large portion of which is flooded annually by the Spring freshet of the Columbia River. Lemon and McGuire islands are largely tree covered with a heavy underbrush. Government Island has a variety of cover from lakes and clear fields to heavy trees and underbrush.

The attached chart shows the cut proposed through Government Island. The Port plans to acquire all land owned by the Game Commission. The portion of Government Island not required for our program will probably be turned over to some other public agency for development as a park. Most likely prospect is Multnomah County who is at the present time condemning the private property at the upstream end for use as a park. A portion of McGuire Island will be exchanged for Tri-Club Island with the remainder to be turned over to a public agency.

This office has been negotiating with the Oregon State Game Commission to determine other suitable sites for "replacement in kind" for the lands owned by the Game Commission on Lemon, Government, and McGuire islands. Mr. George Hibbard, a member of the Oregon State Game Commission, appeared at the FAA hearing and testified that an exchange has been agreed upon (copy attached). This exchange cannot be consummated until approval to proceed with the project has been obtained from all the Federal agencies. The lands to be exchanged are flood free farm areas located adjacent to present game management lands on Sauvie Island.

We have been advised by the Bureau of Sport Fisheries and Wildlife that the Oregon State Game Commission received grants under the Pitman-Robertson Act for the purchase and development of their properties on Government, Lemon, and McGuire islands. Project W24L was approved June 30, 1949, with the land purchases being consummated between June, 1950, and May, 1957. Project W28D covered the funds received by the Oregon State Game Commission for development.

The attached letter dated November 14, 1968, to the United States Army Corps of Engineers outlines our agreement to the conditions expected to be a prerequisite of their approval of our dredging permit.

It is hoped that the foregoing information serves to indicate that The Port of Portland has planned the expansion of PIA for the benefit of not only the aviation interests but for the recreation and wildlife interests as well and has demonstrated that it intends to comply with any applicable requirements of Section 4 (f) of the Department of Transportation Act.

If there are any further questions regarding this matter, please feel free to call.

Sincerely yours,

THE PORT OF PORTLAND

AJH

AJH/ERA:mc

for GEORGE M. BALDWIN
General Manager

Enclosures

5-223.06
~~05-414.3~~

November 14, 1968

Colonel Robert L. Bangert
District Engineer
U. S. Corps of Engineers
Portland District
P. O. Box 2946
Portland, Oregon 97208

Dear Colonel Bangert:

Please refer to earlier conversations on the subject of the dredging permit for the expansion of Portland International Airport. It seems appropriate at this time to reiterate statements made previously or contained in earlier correspondence. The following information is supplied for your records:

1. It is the intent of The Port of Portland to provide the State of Oregon with an appropriate exchange satisfactory to the State for the State's land management areas of Lemon, Government and McGuire islands.

2. The Port of Portland is cognizant of the fact that issuance of a dredging permit does not relieve the Port from liability for any damage to property resulting from the Port's work.

3. The Port of Portland agrees to assume the burden of all maintenance dredging of Airport and Government Island bars (River Mile 110 to 114) by and under the general direction and approval of the Government (U. S. Army Engineers, Portland District) on the following basis:

   The established five-year average maintenance dredging is 150,000 cubic yards per year; accordingly, the Government will reimburse the Port at the agreed rate from the year the Port's dredging project in this area commences through the year it is completed, plus a period of three years thereafter.

The Port agrees that it will be assuming the task of all additional dredging, required to maintain presently maintained depths, above 150,000 cubic yards annually during said periods of time and disposal of the materials, all without costs to the Government.

Should the Port be subject to payments of royalty on materials removed, no part of such costs will be assumed by the Government. The Government will advise the Port approximately ninety days in advance of the time that maintenance dredging is required in the areas involved by this permit.

4. As explained in data submitted to your office on November 12, 1968, and in earlier submittals regarding alternative airport sites, we have investigated alternative methods of accomplishing our required airport expansion and found them unfeasible. This fact, along with the statement contained in Paragraph 1 above, is evidence of our compliance with Section (4) (f) of the Department of Transportation Act, to the extent applicable.

5. The Port of Portland will comply with bona fide requirements of the Department of Interior and other affected agencies or departments.

6. The Port of Portland will exchange a portion of McGuire Island for Sand Island as per understanding with, and to the satisfaction of, Tri-Club Island, Inc.

Sincerely yours,

THE PORT OF PORTLAND

ORIGINAL SIGNED BY
A. J. HEINEMAN

A. J. HEINEMAN
Assistant General Manager

[illegible]

2

REGISTERED PROFESSIONAL ENGINEER
State of Washington, U.S.A.
Province of B. C., Canada

Phone: Res. LOgan 4-4033
Bus. EDison 5-4546

E. ROY TINNEY, PH.D.
Consulting Hydraulic Engineer
2002 ORION DRIVE
PULLMAN, WASHINGTON

June 3, 1968

Mr. M. O. Gardner
City Manager
City of Vancouver
Vancouver, Washington

Dear Mr. Gardner:

Mr. W. J. Witt has sent me a report entitled "Preliminary Report of Hydraulic Analyses Related to the Proposed Airport Expansion" by the Bauer Engineering Company, April 1968. I have reviewed this report, with particular regard to the necessity of checking the analysis by a model study. In my judgment, a model study to check this report would require a very lengthy and very expensive study to produce a result that would be superior to this analysis. I believe the analytical study has been carefully done and represents a professional approach to this problem. For this reason, I believe that the City is warranted in accepting this analysis.

Yours truly,

E. Roy Tinney

E. Roy Tinney
Consulting Hydraulic
Engineer

ERT:rr

RECEIVED BY
[illegible] OFFICE
JUN 4 1968

## PORTLAND INTERNATIONAL AIRPORT WATERFRONT LAND OWNERSHIP

The following list of property owners starts at the westerly end of the Port ownership at N. E. 41st and Marine Drive and extends easterly to approximately N. E. 158th and Marine Drive.

| | | |
|---|---|---|
| Sec. 1, T1N, R1E | TL 13 | The Port of Portland |
| Sec. 6, T1N, R2E | TL 31 | Multnomah County |
| Sec. 5, T1N, R2E | TL 13 | The Port of Portland |
| Sec. 5, T1N, R2E | TL 15 | Portland Sand & Gravel |
| Sec. 5, T1N, R2E | TL 25 | The Port of Portland |
| Sec. 5, T1N, R2E | TL 14 | The Port of Portland |
| Sec. 5, T1N, R2E | TL 26 | The Port of Portland |
| Sec. 5, T1N, R2E | TL 8 | Dorothy Knoll Gearhart |
| Sec. 5, T1N, R2E | TL 22 | The Port of Portland |
| Sec. 8, T1N, R2E | TL 8 | First National Bank of Oregon (Trustee) |
| Sec. 8, T1N, R2E | Street right-of-way | Multnomah County |
| Sec. 9, T1N, R2E | TL 7 | The Port of Portland |
| Sec. 9, T1N, R2E | TL 13 | The Port of Portland |
| Sec. 9, T1N, R2E | TL 3 | First National Bank of Oregon (Trustee) |
| Sec. 9, T1N, R2E | TL 5 | The Port of Portland |
| Sec. 9, T1N, R2E | TL 16 | Vernon A. Nickolson |
| Sec. 9, T1N, R2E | West 100' of TL 16 | The Port of Portland |
| Sec. 9, T1N, R2E | Ackley's River Farms TL 10 | The Port of Portland |
| Sec. 9, T1N, R2E | Ackley's River Farms TL 3 | The Port of Portland |
| Sec. 9, T1N, R2E | Ackley's River Farms TL 5 | The Port of Portland |
| Sec. 9, T1N, R2E | Street right-of-way | Multnomah County |
| Sec. 9, T1N, R2E | TL 8 | The Port of Portland |
| Sec. 9, T1N, R2E | TL 6 | The Port of Portland |
| Sec. 9, T1N, R2E | TL 9 | The Port of Portland |
| Sec. 10, T1N, R2E | TL 13 | The Port of Portland |
| Sec. 15, T1N, R2E | TL 16 | James Katsules |
| Sec. 15, T1N, R2E | TL 19 | Glenn A. Widing |
| Sec. 15, T1N, R2E | TL 14 | George Clarke |
| Sec. 15, T1N, R2E | TL 11 | The Port of Portland |
| Sec. 15, T1N, R2E | TL 12 | William M. Rea |
| Sec. 15, T1N, R2E | TL 6 | Dan Douglas (Marcus L. Maxwell) |
| Sec. 14&15, T1N,R2E | TL 7 | Western Land Development Co. |
| Sec. 14, T1N, R2E | Viewpoint Terrace Lots 1, 2 and 3 | Columbia River Project (Wayne Nagel) |
| Sec. 14, T1N, R2E | Viewpoint Terrace, Lot 4 | Joseph Cardoza |
| Sec. 14, T1N, R2E | Viewpoint Terrace, Lot 5 | Lowell Keizur |
| Sec. 14, T1N, R2E | Viewpoint Terrace, Lots 6 & 7 | Arthur J. Ramzau |
| Sec. 14, T1N, R2E | Viewpoint Terrace, Lot 8 | Albert D. Ashley |
| Sec. 14, T1N, R2E | Street right-of-way | Multnomah County |
| Sec. 14, T1N, R2E | TL 17 | Carroll B. Reinhart |
| Sec. 14, T1N, R2E | TL 18 | Parkrose Water District |
| Sec. 14, T1N, R2E | TL 4 | Allen H. France |
| Sec. 14, T1N, R2E | TL 12 | Irene Fridell (Allan France) |

| | | |
|---|---|---|
| Sec. 14, T1N, R2E | Reynolds Mt. View Plat #2<br>Lots 1, 2, 3,4 & 5 | S. & E. Equipment Co. |
| Sec. 14, T1N, R2E | Reynolds Mt. View Plat #2<br>Lots 6, 7, 8, 9 & 1/2 of 10 | B. & D. Enterprises, Inc. |
| Sec. 14, T1N, R2E | Reynolds Mt. View Plat #2<br>East 1/2 of Lots 10 & 11 | Roger H. George |

Reynolds Mt. View Plat #2, Lots 12 through 22, is composed of houses located on the waterfront which will not be disturbed by The Port of Portland's expansion plan.

| | | |
|---|---|---|
| Sec. 14, T1N, R2E | Reynolds Mt. View Plat #2<br>Lots 33 & 34 | The Port of Portland |
| Sec. 14, T1N, R2E | Reynolds Mt. View Plat #2, Lot 35 | George Miljus |
| Sec. 14, T1N, R2E | Reynolds Mt. View Plat #2, Lot 36 | The Port of Portland |
| Sec. 14, T1N, R2E | Reynolds Mt. View Plat #2<br>Lots 37 & 38 | Rudolph Girtman |
| Sec. 14, T1N, R2E | Reynolds Mt. View Plat #2, Lot 39 | The Port of Portland |
| Sec. 13, T1N, R2E | TL 8 | The Port of Portland |
| Sec. 13, T1N, R2E | TL 6 | The Port of Portland |
| Sec. 24, T1N, R2E | TL 38 | The Port of Portland |
| Sec. 24, T1N, R2E | TL 45 | The Port of Portland |
| Sec. 13&24, T1N,R2E | TL 19 | The Port of Portland |

LDT/lr
3/20/69

## Statement Before FAA Hearing by
## Bill Moran, Rose City Yacht Club representing Tri-Club Island

I am Bill Moran, a member of Rose City Yacht Club and a recreational boater in the area for 16 years, representing and speaking for Tri-Club Island, Inc. Tri Club Island is a nonprofit corporation formed in 1953 under the laws of the state of Oregon to acquire and preserve islands and the adjoining beaches in the Columbia River for the benefit and use of its members and friends. This has been interpreted to include the general public. It began with the Columbia River Yacht Club, Portland Yacht Club and Rose City Yacht Club. Several years later, Tyee Yacht Club was admitted to membership. The membership is limited to members of the four yacht clubs upon payment of a $10 fee which helps defray taxes and nominal administrative expenses. Nonmembership does not exclude anyone from using the facilities provided by the corporation.

The corporation is governed by a Board of Trustees made up of two members from each of the member clubs. As president of the Board of Trustees of Tri-Club Island, I represent more than about a thousand members from the Portland-Vancouver area and they all have a vital interest in the expansion plans for the Portland International Airport. The corporation owns the island known as Sand Island which is directly in the path of the proposed dredging and prior to and since 1953 when Sand Island was purchased and renamed Tri-Club Island, this unique location has provided many enjoyable hours to thousands of boaters. Later years, following the dredging of the 27-foot channel up the Columbia from Vancouver, considerable shoaling occurred in ____________ area limiting the use of the portion, the _______________ is not limited or inhibited the extensive use of the

the beaches or the lagoon. In January of 1968, representatives of Tri-Club Island, along with others, were invited by The Port of Portland to a preliminary preview of their plan for the airport. The effects on recreational boating facilities and the loss of the Tri-Club Island were examined and evaluated by the several interested boating groups and subsequent discussions with The Port of Portland to effect a satisfactory exchange for Tri-Club Island, several alternate locations were covered. Final agreement was reached in June of 1968 with McGuire Island as the choice for several reasons. One, an anchorage area will be provided for between McGuire Island and Government Island which will be dredged to a depth of ten feet below zero datum. This area has a greater chance of remaining in a more stable condition, free from the excessive silting that has occurred at the Tri-Club Island site. Two, extensive beach areas will be available at both McGuire Island and Government Island for picnicking and for general yacht club activities. Three, deep water access will be provided in the south channel from the main river which will also open up the entire south channel to deep draft navigation which has heretofore been lacking. Four, the location is within a reasonable boating distance for the member clubs and the general boating community.

As the McGuire Island location so closely resembles the Tri-Club Island site, the trustees of Tri-Club Island feel that The Port of Portland has adequately and resonsibly fulfilled their obligations to provide a suitable replacement.

Thank you.

FOR THE PIA EXPANSION

OREGON STATE GAME COMMISSION (Called to BPA office by Mr. P. W. Schneider)

Mr. Chairman:

My name is George Hibbard. I am a member of the Oregon State Game Commission. I am appearing here on behalf of the Commission in response to the public notice dated August 15, 1968.

The land owned by the Oregon State Game Commission on Government Island is a unit of the Sauvies Island Wild Life Management area and is serving a useful purpose in our Wild Life Management Program.

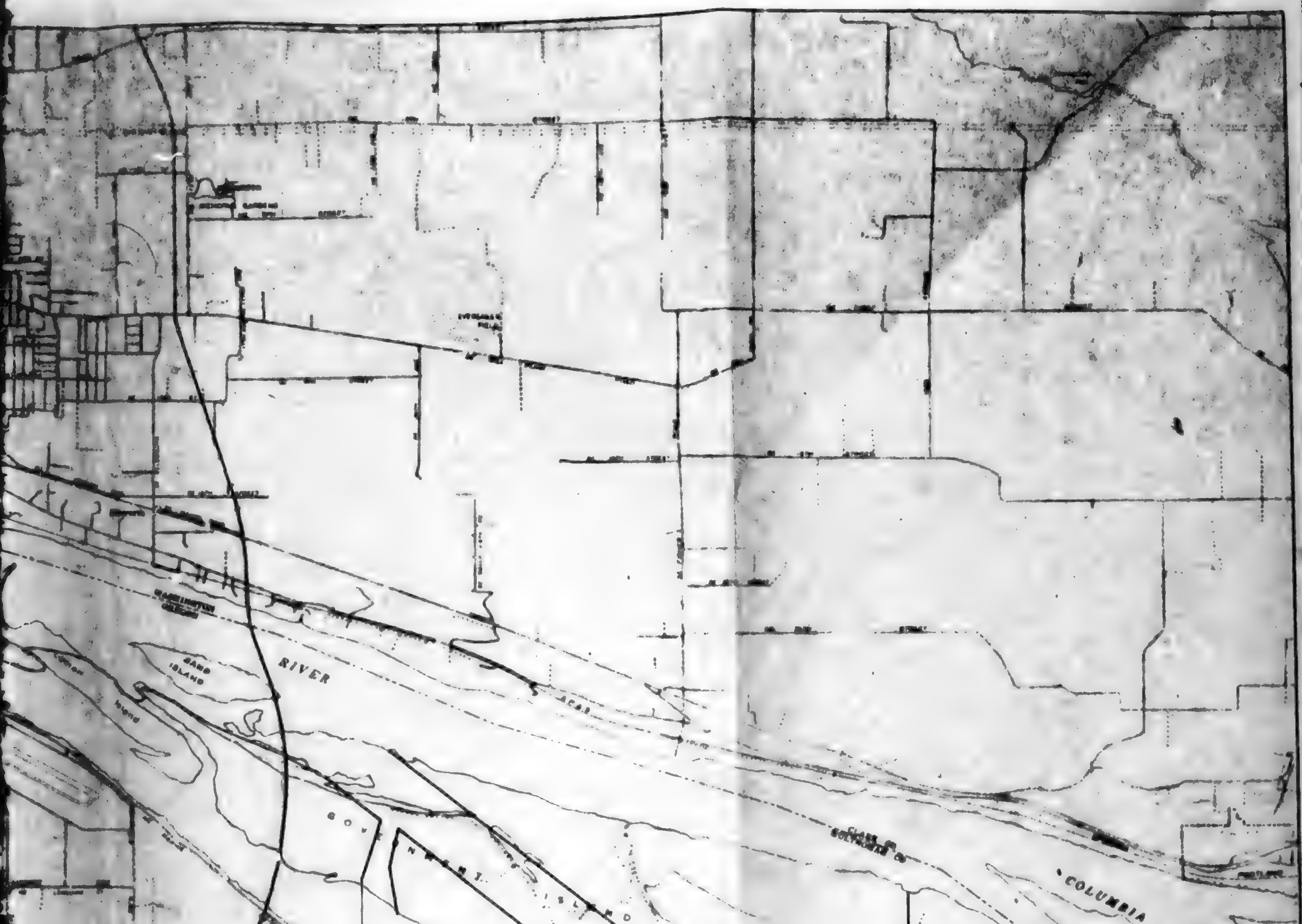
Progress has decreed that these lands are necessary for the proposed airport expansion and Interstate Highway I-205 location. Fortunately, however, there are suitable replacement areas of at least equal wild life values located in comparable relationship to the Sauvies Island base.

At the request of The Port of Portland some months ago, the Commission identified after careful consideration these suitable replacement areas that we would accept in exchange for Government Island.

An exchange has been agreed upon based on the Commission's best conservation judgment that would provide the Game Commission with an area of equal wild life value. Although this exchange has not been consummated to date, its completion is anticipated in the near future.

Thank you.

CLARK CO
MULTNOMAH CO
COLUMBIA
COLUMBIA EDGEWATER GOLF CLUB
RIVERSIDE COUNTRY CLUB
COLUMBIA SLOUGH
PORTLAND
INTERNATIONAL AIRPORT
PORTLAND AIR FORCE BASE
PORTLAND
RIVER


SAND ISLAND
RIVER
GOVERNMENT ISLAND
COLUMBIA
PRIVATE PROPERTY
BLM
McGuire Island
Columbia Slough
Columbia Slough

THE PORT OF PORTLAND

# PIA

# ISLAND PROPERTIES

SCALE: 1" = 4,000'
DRAWN BY: KYP
DATE: 3-21-69
DRAWING No:

TECHNICAL SERVICES DEPARTMENT - PLANNING

08-2

BAUER ENGINEERING, INC.
CONSULTING ENGINEERS-ENGINEERING HYDRAULICS
20 NORTH WACKER DRIVE
CHICAGO, ILLINOIS 60606

TELEPHONE
FRANKLIN 2-9696

CABLE ADDRESS
"BAUERENG CHICAGO"

April 19, 1968

|  | Action | Info |
|---|---|---|
| Gen. Mgr. |  | X |
| Asst. Gen. Mgr. |  | X |
| Aviation | 2 |  |
| Ind. Devel. |  |  |
| Marine |  | X |
| Ch Engr. |  | X |
| Compt. |  |  |
| Personnel |  |  |
| Planning |  | X |
| Pub. Affairs |  | X |
| Sp. Projects |  |  |
| Attorney |  |  |
| Consultant |  |  |
| BPA |  | (X) |
|  |  |  |
| No. of Copies |  |  |

SUMMARY LETTER

Mr. George M. Baldwin
General Manager
The Port of Portland
P. O. Box 3529
Portland, Oregon 97208

Subject: Airport expansion;
hydraulic aspects

Dear Mr. Baldwin:

This letter is a summary of our studies made for the Port of Portland regarding the hydraulic aspects of the proposed expansion of the airport. We have concluded that the proposed relocation of a portion of the Columbia River south of Government Island is a feasible and sound way of achieving the additional space required.

The Present Channels

The present channels in the reach of the river involved in this study are shown in Exhibit 1. The main or north channel lies between Government Island and the Washington shore; the south or minor channel lies between Government Island and the Oregon shore. Exhibit 1 also shows the locations of the cross sections for which bottom soundings were available.

The hydraulic aspects of this reach were studied with the aid of the following information:

1. Scale maps showing channel configurations, shore topography and bottom soundings for each of several years covering the period 1917 to 1967.

2. Aerial photographs showing present channel configurations and shoreline development.

3. Flow measurements made with current meter by the Batelle Memorial Institute for the purpose of determining the division of flow between the north and south channels under low-flow conditions.

4. Flow profiles for major historical floods during the period 1876 to 1965.

5. Records of past historical flood peak flows and forecasts of future peak flood flows after Canadian storage comes into operation.

6. Field inspection of conditions and materials comprising the Washington, the Oregon, and various island shore lines.

7. Envelopes of historical maximum and minimum flows by time of year.

8. Reports on subsurface borings made to explore types and depths of materials to be excavated.

The friction coefficients for the main channel and for the overbank flow at higher stages were determined from the knowledge of historical discharges and stages .

Using the standard step method and the Meyer-Peter equation for sediment transport, an electronic computer program was developed to calculate section by section the following flow characteristics:

1. Water-surface elevation

2. Average velocity in the section

3. Sediment transportation capacity of the section.

These characteristics were computed using two types of mathematical models, one based upon the assumption that cross flows over the islands would equalize water stages in the south and north channels, and another which assumed that these channels were effectively divided and that different stages could exist in the two channels at the same station. Both models gave the same results as far as overall hydraulic capacity and total transport of sediment were concerned.

However, the second model in which the separate channels were assumed to be effectively divided by the islands was used for most of the subsequent analyses because it permitted the study of the differences in these three characteristics in the two channels at the same station.

## The Proposed Channels

Two possible arrangements of channels involving filling in of a portion of the present south channel were studied as shown in Exhibits 2 and 3. Each of these two arrangements was calculated for the same discharges that were used to analyze the present channels. The design of the south channel was first adjusted to achieve stable conditions; then, the amount of main or north channel excavation was adjusted to achieve flow characteristics which were equal or superior to the corresponding characteristics of the present channel. By trying one after another of possible excavation plans, the depths and widths of channel excavation were adjusted to achieve the following goals:

1. The same division of flow between north and south channels as presently exists at all possible stages and discharges.

2. More uniform sediment transportation capacity so as to reduce present tendencies to scour in some places and to fill in other places.

3. The same flood-passing ability as presently exists.

## Conclusions

The results of our studies are summarized in the following conclusions:

1. Either of the two proposed channel configurations (Exhibits 2 and 3) achieves the desired goals.

2. Scour problems which presently exist along parts of the Washington shore would be mitigated by the proposed new channels. This is particularly true in the vicinity of Sand Island.

3. Sediment transport capacity of the proposed channels would tend to be more uniform than it is in the present channel. This means that both scour and deposition would be diminished.

4. Flood-passing ability would be equal to or slightly greater than that of the present channels.

5. Scour protection along the Oregon shore in areas of channel curvature can be designed after selection of the desired plan (Alternative 1 or 2).

6. Scour protection along the Washington shore will not be required as a result of the proposed channels.

7. Method of closure of the south channel during construction would be determined after selection of the desired plan (Alternative 1 or 2).

8. Hydraulic model tests would not add to the understanding of the comparative performances of the present and the two alternative proposed channels.

9. In Alternative 1 there are a few locations where the average velocity for a given flood would be higher than the average velocity at the same location for the same flood under present conditions; however, in these locations the sediment transport capacity would still be less than it is under present conditions so that increased erosion would not result.

10. Alternative 2 would perform in much the same manner as Alternative 1, the major difference being in the reach downstream from the confluence of the south and north channels where both the average velocity and sediment transport capacity would be somewhat reduced as compared to Alternative 1. Alternative 2 would have in this reach essentially the same velocities as does the present channel, with significantly reduced sediment transport and erosion tendencies as compared to the present channel.

We find the proposed relocation of the south channel of the Columbia River at this location to be a sound and practical way to achieve the additional space which expansion of the airport would require. Either of the two proposed channel designs would result in more stable channels.

After one of the alternative plans has been selected, final design studies could be made covering details such as local scour protection at points of curvature on the Oregon shore, method of closure during construction, and cleaning of floating debris from the proposed lagoon. Preliminary studies of this lagoon indicate that pollution problems related to biochemical oxygen demand, coliform count, and related invisible measures of pollution would not be a problem. However, some further study should be given to the matter of floating debris, for which one type of solution is indicated on the drawings accompanying this report.

It has been a pleasure working with you on this project. We would be happy to discuss this report with you, your staff, or any other interested persons at your request. Thank you for the opportunity to study such an interesting proposal for which so much underlying data was available for analysis.

Sincerely,

W. J. Bauer

W. J. Bauer
President

WJB:fb

Att: Exhibits 1, 2 and 3.

9555

OREGON STATE
HIGHWAY DEPARTMENT

HIGHWAY BUILDING • SALEM, OREGON • 97310 • Phone 364-2171

February 27, 1969

Commander
13th Coast Guard District
618 Second Avenue
Seattle, Washington 98104

Attention Comdr. Victor Koll
Chief, Aids to Navigation Branch

Re: Columbia River Bridge
Interstate 205
Navigation Permit

Dear Sir:

By letter of January 14, your Serial 49, three sheets of original tracings for the proposed Columbia River Bridge on Interstate 205 were returned to the Highway Department with a print of an aerial view of the proposed airport expansion by the Port of Portland. This letter requested that the drawings be revised to reflect the physical conditions after the completion of the Port of Portland's dredging and airport expansion. Also, that the drawings be amplified to indicate horizontal and vertical clearances on all spans southerly of the main navigation channel.

The above requests have been completed and I am enclosing the original tracings of six drawings with four prints of each drawing and the print of the aerial view prepared by the Port of Portland. It was necessary to amplify the original three drawings by the addition of Sheets 4, 5 and 6 to comply with the requests in your letter of January 14.

Also enclosed are four prints each of three drawings prepared by the Port of Portland, as submitted to the Corps of Engineers for a dredging permit. These drawings are designated PA 68-10, Sheets 1, 2, and 3, and are included for your information.

The original tracings were submitted to the Portland District of the Corps of Engineers in 1967 and were the subject of a public hearing on May 25, 1967. At this public hearing, a small craft channel with a horizontal clearance of 120 feet and a minimum vertical clearance of 69 feet was requested by pleasure boat operators. To comply with this request, Span No. 25, as indicated on Sheet 3 and Sheet 5 of the enclosed drawings was chosen for the small craft channel. It should be pointed out that the spans northerly from the selected small craft channel will have more vertical and horizontal clearance than the selected channel and would be available for crossing under the bridge structure.

In the design and construction of this project, the State Highway Department proposes to engage a consulting engineer for the design and preparation of plans. A requirement of this engineering contract will be for the consultant to make a study of the most economical span lengths versus pier costs to determine the final structure layout. For this reason, the vertical and horizontal clearances of all spans, except the main channel span and the selected small craft channel span, are subject to change. However, we believe any change will be within very narrow limits. At such time as the final geometry of the entire structure is finalized, revised drawings will be sent you.

Falsework construction requirements cannot be determined at this time. It is the Highway Department's policy to require the contractor to obtain permits for construction falsework to suit his steel erection program and the structure as finally designed.

At such time as the Port of Portland receives a permit for dredging and the airport expansion, the State requests that this permit for the bridge construction be processed to completion.

It is believed that all of the requests in your letter of January 14 have been complied with. Please advise if there is anything further that we can do in this matter to assist you.

Very truly yours,

Forrest Cooper
State Highway Engineer

By
ORIGINAL SIGNED
TOM EDWARDS
Tom Edwards

bc Forrest Cooper
R. L. Porter
F. B. Klaboe
Victor D. Wolfe
Ivan Merchant

[illegible] ia

u.s.c. Guard
9555

RECEIVED
OREGON STATE HIGHWAY DEPT.
BRIDGE DIVISION
AM FEB 18 1969 PM
7,8,9,10,11,12,1,2,3,4,5,6

1859

**OREGON STATE
HIGHWAY DEPARTMENT**

HIGHWAY BUILDING • SALEM, OREGON • 97310 • Phone 364-2171

February 17, 1969

Commander Victor Koll
Chief, Aids to Navigation Branch
U. S. Coast Guard
13th Coast Guard District
618 Second Avenue
Seattle, Washington 98104

Re: Interstate 205
Columbia River Bridge
Navigation Permit

Dear Sir:

By letter of July 12, 1968, the U. S. Department of the Interior (Joe D. Dwyer) approved the State's application for a navigation permit subject to the following condition:

> "That the Oregon State Game Commission lands affected by the project be replaced with substitute lands, which are acceptable to the Game Commission."

The State has been advised that the Port of Portland and the Oregon State Game Commission have been in negotiation for the exchange of lands suitable to the Game Commission and that the Port of Portland has made commitments to the Game Commission to resolve this exchange of lands to the full satisfaction of the Game Commission.

The State is in receipt of a letter from the U. S. Department of the Interior stating that in view of the commitments made by the Port of Portland, they are withdrawing their objection to the Oregon State Highway Department's application for a navigation permit.

Very truly yours,

Forrest Cooper
State Highway Engineer

By ORIGINAL SIGNED
TOM EDWARDS

Tom Edwards
Assistant State Highway Engineer

bc Forrest Cooper
R. L. Porter
Victor D. Wolfe/
Ivan Merchant/

NOTED
IVAN D. MERCHANT

IDM:jr ja

Info: RLH
GMcB
ADH
LLT

08-240.04

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

SEATTLE AREA OFFICE
FAA BUILDING, BOEING FIELD
SEATTLE, WASHINGTON 98108

RFD
OB
WGP
MJ

In Reply
Refer To: SEA-500

FEB 17

8-A

## AERONAUTICAL STUDY NO. 68-SEA-38-NRF

## DETERMINATION OF AIRSPACE USE

On June 13, 1968, the FAA circularized for public comment a proposal by the Port of Portland to replace the two principal runways 10R/28L and 10L/28R with two new runways 5,000 feet apart realigned to 9R/27L and 9L/27R.

The FAA letter "To All Concerned" stated that objectors to the proposal should state valid aeronautical reasons how the proposal would adversely affect safety of air navigation. Because of the considerable public interest and the many comments received, the FAA conducted an Informal Public Hearing in Portland, Oregon, on September 25 and 26, 1968.

Both in writing and at the hearing many comments were received in support of and in opposition to the proposal. Those supporting the proposal spoke to the need for expanding the capability of the airport to meet the needs of the public for air transportation. They called attention to the advantages of the present airport location in serving the public because of its central location in the greater Portland-Vancouver metropolitan area, and its proximity to rail, highway and water transportation facilities for an integrated transportation system. The objections were primarily concerned with possible increased noise, possible effects on river hydraulics, and effects on the recreation areas, wildlife and natural beauty.

## Effect on Other Airports

No objections to the proposed new runways were received based on safe and efficient use of airspace at other airports in the vicinity.

The FAA study developed the following facts. The extended centerline of the existing runway 10L/28R passes directly over Pearson Airpark at Vancouver, Washington, which is located 3.5 miles northwest of the end of runway 10L. Because of potential traffic conflictions between aircraft using runway 10L/28R and aircraft using Pearson Airpark, the FAA on October 6, 1967 issued a Special Air Traffic Rule in FAR 93, Section H, requiring aircraft using Pearson Airpark to contact Portland Tower and to fly all traffic patterns to the north of Pearson Airpark. The extended centerline of the proposed new runway, 9L/27R, would pass approximately 2,000 feet south of Pearson Airpark. Safety of operations at the two airports would be improved by providing lateral separation between the flight paths of aircraft using the two airports.

The extended centerline of the proposed runway 9L/27R would pass directly over Troutdale Airport eight miles to the east. A $2\frac{1}{2}$ degree glide slope would be at an elevation of 1830 feet MSL over Troutdale Airport. Aircraft operating IFR or VFR using runway 9L/27R at Portland would normally be at or above the glide slope altitude. The field elevation at Troutdale is 36 feet MSL and the traffic patterns are presently flown at 1000 feet above ground. A traffic pattern altitude of 800 feet above the airport elevation is feasible for Troutdale and the FAA will recommend this altitude for Troutdale patterns if the new runway is constructed. This will provide approximately 1000 feet vertical separation from aircraft on approach to Portland. In addition the FAA operates a control tower at Troutdale Airport 16 hours per day during the active traffic periods. The vertical separation between flight patterns and the control tower service will provide adequate safety for the flights using both Troutdale Airport and Portland International Airport.

The proposed new runways would not affect other airports in the vicinity to any greater extent than the existing runways at Portland International Airport.

The FAA study concluded that the construction of the two new runways proposed at Portland International Airport would have no adverse affect on safe and efficient use of airspace at other airports in the vicinity, and would result in some improvement in safety of operations in the vicinity of Pearson Airpark.

The KGW radio towers 636 feet AMSL located approximately 16,800 feet west of the threshold of the proposed Runway 9R will penetrate the obstruction standards of FAR 77.27(b) approach surface by 240 feet. The Port of Portland has recognized this obstruction and stated in their presentations at the FAA hearing that these radio towers will be relocated or lowered if the plan is approved.

## Noise

Many residents of the City of Vancouver, Washington, objected to the proposed construction because of anticipated additional aircraft noise. The FAA recognizes aircraft noise as a factor in its airspace review of airport proposals.

The FAA study showed that at the present time aircraft landing to the east, or taking off to the west on the north parallel runway, 10L/28R, pass over the downtown area of Vancouver. Approach and departure paths to the west for the new north parallel runway 9L/27R would be shifted southward over the Columbia River and south of the City of Vancouver. Similarly, aircraft taking off to the east or landing to the west on the present south parallel runway 10R/28L pass over or near the Parkrose area east of Portland. The new south runway 9R/27L would shift the extended centerline of this runway northward which would reduce noise exposure to residents of the Parkrose area.

The new north parallel runway 9L/27R is proposed to be built partly on a fill in the Columbia River and will be closer to the north bank of the Columbia River adjacent to the airport by amounts varying from 500 to 2,500 feet as compared to the present north parallel runway 10L/28R. Applying typical noise contour curves to the existing and proposed runways indicates there will be a slight increase in noise in a relatively small area along the north bank of the river opposite the airport. The much larger areas of high noise level extending from the ends of the runways along the extension of the runway centerlines will be shifted southward away from Vancouver to over the Columbia River and the bottom lands on the south side of the river. The new areas affected are not primarily residential areas.

The FAA study concluded that there will be an overall reduction of noise exposure over the downtown area and principal residential areas of Vancouver, Washington, by construction of the new runways. In addition there should be a slight improvement in the Parkrose area southeast of the airport.

## River Hydraulics

Some objections received by the FAA concerned possible adverse effects on the Columbia River hydraulics.

The U. S. Army Corps of Engineers solicited comments and conducted a public hearing in Portland on August 1, 1968 to assist them in studying possible effects on the Columbia River of the proposed filling and dredging. That agency is now reviewing and studying the proposal and will be issuing a separate determination on these matters.

## Other Effects

The FAA received comments both in support of and objecting to the proposed new runways with respect to the effect on recreational areas, wildlife refuges, the historic character of the river, and the natural beauty of the river.

Under the Department of Transportation Act both the Department of Transportation and the Department of Interior must give consideration to the effects of proposed airport construction on public parks, recreational areas, historic sites and wildlife refuges prior to granting of any federal funds for assistance on new airport construction.

Consideration of these factors is not a part of this determination which is concerned with the safe and efficient use of airspace.

Runway 2/20

Some persons commenting on this proposal referred to the current project for extension of runway 2/20. On February 16, 1966, the FAA in a letter "To All Concerned" invited public comment on the proposal to extend runway 2/20 in a southwesterly direction. In addition to the normal distribution of this notice to approximately 125 organizations and persons on our regular mailing list, copies were mailed to Portland and Vancouver newspapers, city officials and airport managements. No objections were received and that proposal was found acceptable from an airspace use standpoint on September 19, 1967. Extension of runway 2/20 is not a part of the proposal now under consideration and is not being evaluated in this study since it was reviewed previously.

Determination

Therefore, pursuant to the authority delegated to me, I determine that there is no objection by the Federal Aviation Administration from the standpoint of safe and efficient use of airspace to the construction of two new parallel runways, 9R/27L and 9L/27R, at the Portland International Airport as proposed by the Port of Portland.

This determination is effective February 14, 1969, and expires on December 31, 1971, unless construction of the new runways has started, or the determination is otherwise extended.

In order to permit the optimum instrument approach minimums and realize the full potential of these new runways, it will be necessary to relocate or lower the KGW radio antennas so they do not exceed the obstruction standards in Federal Aviation Regulations, Part 77. Commitments have been received from the KGW Radio Station and the Port of Portland to accomplish this.

FRED S. MCKNIGHT
Chief, Air Traffic Branch, SEA-500
Oregon and Washington

Issued in Seattle, Washington, on February 14, 1969.

ajH

# RECREATION OUTLINE

Corps Hearing August 1, 1968

## I. EXISTING CONDITIONS

A. Inventory of Existing Facilities (see table)

1. Only 6% or 8,000 lineal feet of waterfront is developed, mostly in moorages -- 670 slips (including houseboats)

2. No swimming or sunning beaches developed. No parking or supporting commercial services.

3. Boating is the only sport taken care of. River, islands and moorages provide needed space and facilities.

4. Sightseeing along Marine Drive very popular with both the river and airport as attractions.

B. Condition of facilities

1. Moorages are good to very poor.

2. Sightseeing competes with through traffic.

3. Parking is inadequate for facilities developed and is hazardous at beaches.

## II. RECREATION DEMAND

A. Population growth of metro region from 800,000 in 1967 to 1,400,000 in 1990.

B. Marine oriented Recreation

1. 1962 study showed a need for increased part-day recreation facilities including:

    a. Waterfront parks
    b. Sightseeing viewpoints
    c. Swimming beaches
    d. Upgraded moorages

## III. REGIONAL ASPECTS OF RECREATION

A. Columbia River is a natural resource which should be preserved for the recreational needs of the Portland-Vancouver region. Maximum access for all sorts of recreation.

B. The river is only part of the Columbia River system for boats. Moorages and commercial services are needed for Portland people as well as for waterborne tourists traveling the waterways system. Portland is natural beginning and stopping place for the boating tourist.

## IV. ENVIRONMENTAL ASPECTS

A. The river must continue to appear in its natural state. Plantings on islands preserved. New plantings along flatter dikes 5:1 vs. old 3:1. Beaches will remain and be policed and maintained.

B. The land uses must accommodate more people. The same space must serve more people who want to do more things. The uses must be controlled so that chaos and ugliness do not result as is now happening.

C. River is a Natural Resource

1. Commercially it is a transportation element that will see a dramatic increase in barge operations with controlled water.

2. Commercial uses serving the water tourist, and the I-205 car tourist will have to locate without infringing on the appearance of the riverbank.

3. Recreation facilities must be developed to its maximum because of its urban setting. It has to be controlled and segmented.

4. The river itself is not stopped or blocked. It continues to flow and is now to be further stabilized.

5. Relocation of existing recreation development is provided for in the overall planning procedure.

## V. RESPONSIBILITIES OF THE PORT

### A. Aviation Responsibilities

1. The airport takes care of our commercial aviation needs to the year 2000 (aircraft type, area of field).

### B. Economic Growth of Area

1. The airport is needed for proper economic growth of a distribution center such as Portland.

2. This location is least costly to the community in access convenience and cost of travel.

### C. Marine Development

1. The river retains its navigational advantages to commerce and recreation.

### D. A Regional Public Agency

1. We have cooperated with various public agencies to see that vested interests are preserved.

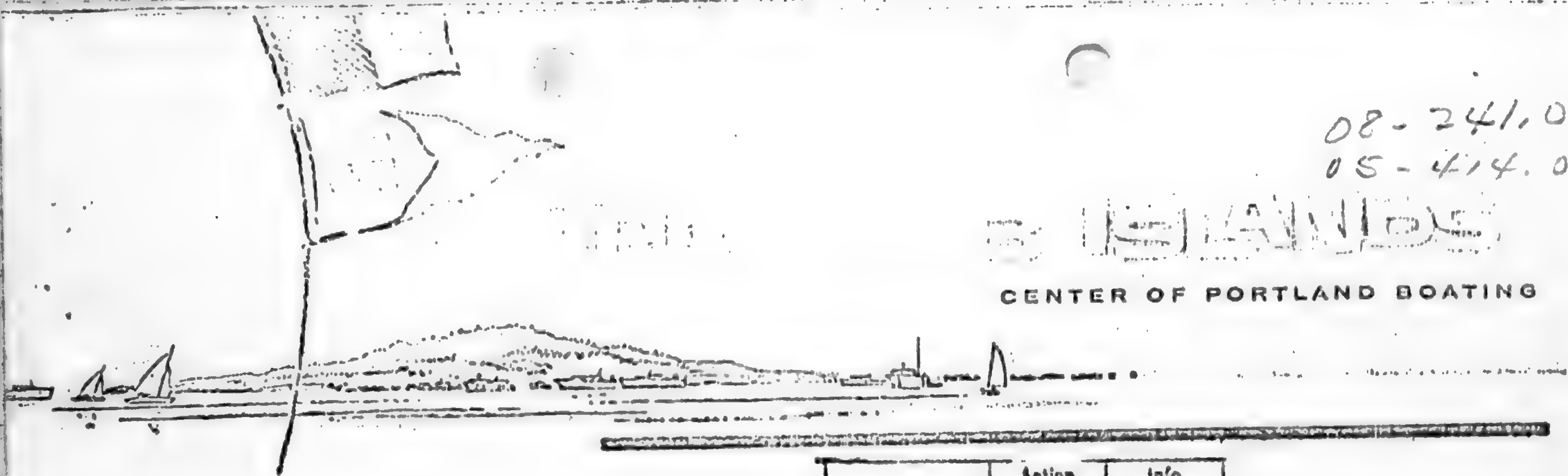
2. We are developing the area for the good of the entire population.

3. We are looking forward to the future demands of a growing region by creating a balance of utility and enjoyment of a natural resource.

JK:mmb
7/29/68

cc: G. M. Baldwin
A. J. Heineman ✓
G. D. Hext
O. Beeman
E. R. Arnold
D. N. Neset
T. A. Spence

08-241.04
05-414.02



ISLANDS
CENTER OF PORTLAND BOATING

| | Action | Info |
|---|---|---|
| Gen. Mgr. | | X |
| ~~Asst. Gen.~~ Mgr. | | X |
| Aviation | | X |
| Ind. Devel. | | |
| Marine | / | |
| Ch Engr. | | |
| Compt. | | |
| Personnel | | |
| Planning | | X |
| Pub. Affairs | | X |
| Sp. Projects | | |
| Attorney | | |
| Consultant | | |
| [illegible] | | X |
| No. of Copies 7 | | |

July 29, 1968

Copy for Port of Portland

Robert L. Bangert
Colonel, Corps of Engineers
District Engineer
Department of the Army
Portland District
628 Pittock Block
Portland, Oregon 97205

Dear Sir:

The Tri Club Island organization recently forwarded a letter to the Portland District Corps of Engineers in regard to Public Notice 68-47 for the Portland International Airport Expansion.

Our adverse comment was based on the uncompleted negotiations between the Port of Portland and the Tri Club group covering the replacement of Tri Club Island (Sand Island) which will be removed if the expansion plan is approved.

Following recent discussions with the Port of Portland representatives, a final and satisfactory agreement has been reached which involves an exchange of part of McGuire Island for Tri Club Island and provision of a suitable deep water anchorage area between McGuire Island and Government Island.

Accordingly, the Tri Club Island organization has no further objections to the present plan for expanding the airport, and further proposes that the permit be granted.

Sincerely yours,

William S. Moran

William S. Moran
President, Tri Club Island, Inc.
6241 S. E. Alder Street
Portland, Oregon 97215

03-241.0[illegible]

CENTER OF PORTLAND BOATING

| | Action | Info |
|---|---|---|
| Gen. Mgr. | | × |
| ~~Asst. Gen. Mgr.~~ | | × |
| Aviation | | × |
| Ind. Devel. | | |
| Marine | / | |
| Ch. Engr. | | |
| Compt. | | |
| Personnel | | |
| Planning | | × |
| Pub. Affairs | | × |
| Sp. Projects | | |
| Attorney | | |
| Consultant | | |
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| | | |
| No. of Copies | 7 | |

July 29, 1968

Port of Portland
710 S. W. 2nd Avenue
Portland, Oregon 97204

Dear Sirs:

This will confirm recent discussions between Mr. Heineman and Mr. Beeman of the Port of Portland and Mr. Moran and Mr. Byers of Tri Club Island regarding the exchange of McGuire Island for Tri Club Island. The following general conditions were agreed upon.

We would request that the property exchange be made on an equal acreage basis to more closely provide a comparable amount of beach area. Also, as the eastern part of McGuire Island is to be retained by the Port of Portland, suitable permanent property line markers shall be provided for future reference.

That, in the lagoon area between Government Island and McGuire Island, a channel be dredged approximately 300 feet wide along the full length of Tri Club property to a depth of 10 feet below 0 datum. It was further agreed that should the Port of Portland require additional fill material, the lagoon area could be widened to approximately 600 feet and deepened to 20 feet below 0.

That, the Port of Portland would provide a channel on the south side of McGuire Island of sufficient length to connect the proposed new channel through Government Island to the deep water on the south side of McGuire Island, thereby providing a deep water channel along the entire south channel.

In as much as it is the basic purpose of Tri Club Islands, Inc. to provide suitable locations where pleasure boats may be anchored and the beaches enjoyed in their natural state, this area will therefore be open to general public use without restriction, other than speed in the anchorage area.

Sincerely yours,

William S. Moran

William S. Moran
President, Tri Club Island, Inc.
6241 S. E. Alder Street
Portland, Oregon 97215

8905

RECEIVED
MAY 19 1969
FOR FILE

Form FHWA-121 (12-67)
UNITED STATES GOVERNMENT

# *Memorandum*

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
BUREAU OF PUBLIC ROADS
477 Cottage Street NE.
Salem, Oregon 97301

DATE: May 8, 1969

In reply refer to: 08-35-EC/727
X I-205-7(-)

TO : Mr. Forrest Cooper, State Highway Engineer
Salem, Oregon

FROM : R. E. Simpson, Division Engineer
Salem, Oregon

Klaboe

SUBJECT: I-205 - Portland International Airport
Airport Highway Clearance

We are returning herewith one fully signed copy of a sketch map showing the location of the proposed crossing of I-205 over the Columbia River with relation to the proposed enlarged Portland International Airport.

This map was signed nearly a year ago by representatives of the Oregon Board of Aeronautics, the Oregon State Highway Department and the Bureau of Public Roads indicating their joint concurrence in the finding that this highway proposal was in the public interest as required by Section 318 Title 23 USC and PPM 20-13. We have delayed distribution of this map pending receipt of review comments from the Federal Aviation Administration. We now have their "Determination of No Hazard to Air Navigation" for Aeronautical Study No. SEA-OE-68-145 (copy attached) which gives their clearance for the proposed highway improvement subject to the installation of obstruction lighting in accordance to the standards outlined in FAA Advisory Circular No. 70/7460-1.

Enclosure

5-13-69

Edwards - Merchant - Barber - Young - Johnson
BY ASST. STATE HWY. ENGR

NOTED
TOM EDWARDS

RECEIVED
MAY 12 1969
OFFICE OF
STATE HIGHWAY ENGINEER

NOTED
F. B. KLABOE

NOTED
R. L. PORTER

BUY U.S. SAVINGS BONDS REGULARLY ON THE PAYROLL SAVINGS PLAN

RECEIVED
APR

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

SEATTLE AREA OFFICE
FAA BUILDING, BOEING FIELD
SEATTLE, WASHINGTON 98108

In Reply
Refer To: SEA-OE-68-145

## AERONAUTICAL STUDY NO. SEA-OE-68-145

## DETERMINATION OF NO HAZARD TO AIR NAVIGATION

The Federal Aviation Administration has conducted an aeronautical study in accordance with Part 77, Federal Aviation Regulations, to determine the effect the following described construction would have on the safe and efficient utilization of navigable airspace.

**PROPONENT:** Oregon State Highway Department

**STRUCTURE:** Six Lane Interstate Freeway (I-205) and Bridge

**LOCATION:** Extending generally in a north/south direction approximately 13,000 feet east of the airport reference point, Portland International Airport, Portland, Oregon.

**HEIGHT:** 175 Feet Above Mean Sea Level

From a point approximately 6000 feet northeast of the east end of runway 28R northward, the bridge would exceed the standards of Federal Aviation Regulations Part 77, Section 77.24(a)(4) horizontal surface by varying amounts up to 38 feet. From a point approximately 3600 feet north-northeast of the east end of the proposed runway 27R northward, the bridge would exceed the standards of Federal Aviation Regulations Part 77, Section 77.25(a)(4) horizontal surface by varying amounts up to 24 feet. The terrain along the Washington side of the Columbia River extends upward to 310 feet AMSL, and exceeds the standards for the existing and proposed runways at Portland International Airport by varying amounts.

The proposal was circularized to the public for comment on August 14, 1968. In response to this circularization no aeronautical objections were received.

The study conducted by the FAA revealed that the bridge as proposed would not require an increase in any minimum flight altitude or instrument approach procedure as prescribed for the Portland International Airport for the existing runways or the proposed new runways. The bridge would have no adverse effect on VFR operations provided that it is obstruction lighted.

Therefore, pursuant to the authority delegated to me, it is hereby determined that the proposed six lane interstate freeway (I-205) and bridge would not be a hazard to air navigation provided that the bridge is obstruction lighted in accordance with the standards outlined in FAA Advisory Circular No. 70/7460-1.

4-28-69

Edw - Merchant - Young - Barker

By Asst. State Hwy. Engr.

[illegible]

The effective date of this determination is May 28, 1969. This determination is subject to review by the Administrator if a petition is filed on or before May 18, 1969. If no petition is filed, the determination becomes final on May 28, 1969. If a petition is filed, further notice will be given and the determination will not become final pending disposition of the petition.

Petitions for discretionary review must be filed in triplicate with the Chief, Obstruction Evaluation Branch, Federal Aviation Administration, Washington, D. C. 20590, within 30 days after the date of issuance and must contain a full statement of the basis upon which they are made.

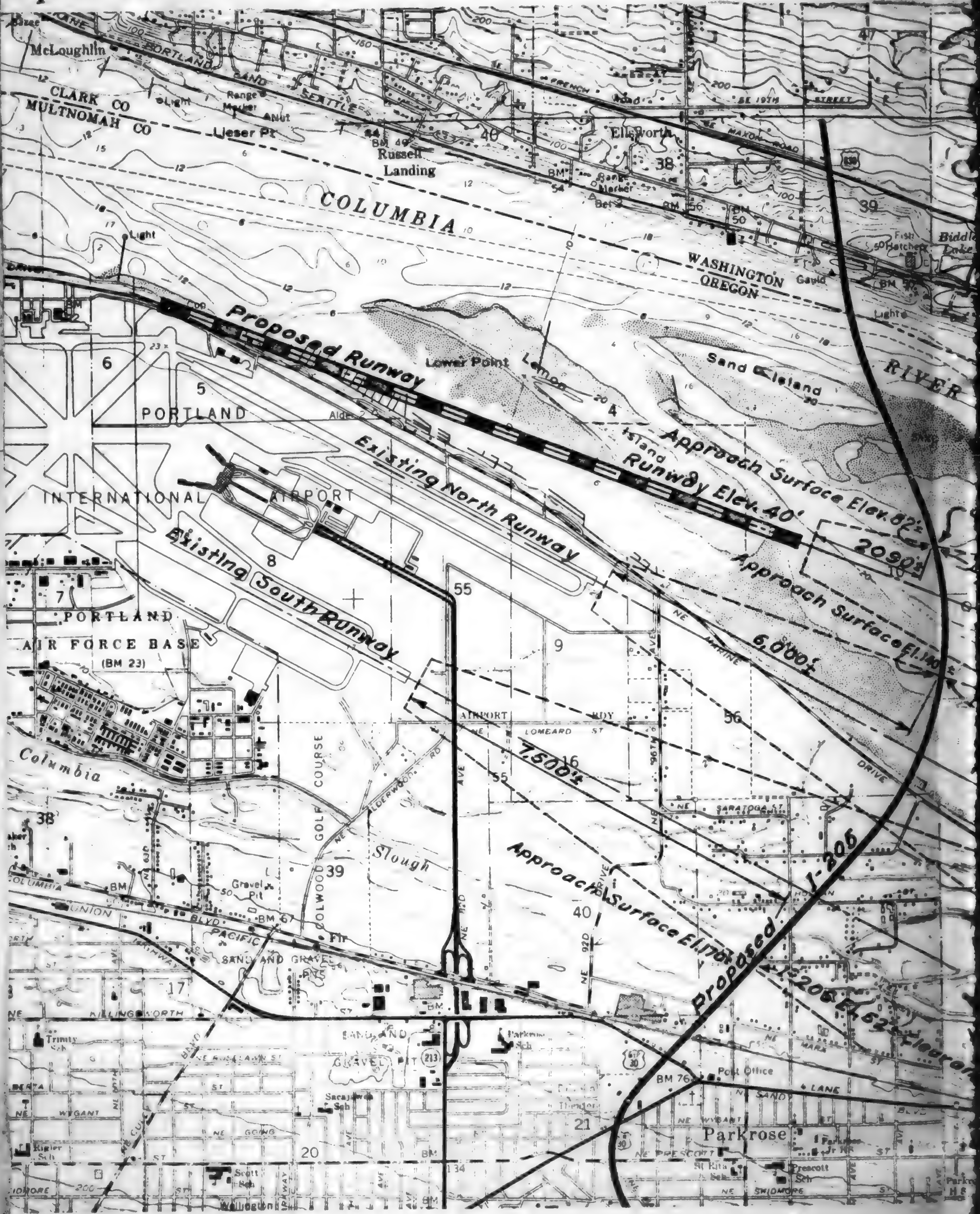
This determination expires on November 28, 1970 unless otherwise extended, revised, or terminated. This does not waive the requirements of any other governmental agency.

Fred S. McKnight

FRED S. MCKNIGHT
Chief, Air Traffic Branch, SEA-500
Oregon and Washington

Issued in Seattle, Washington, on April 18, 1969.

RECEIVED
APR 28 1969
OFFICE OF
STATE HIGHWAY ENGINEER


McLoughlin
PORTLAND
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CLARK CO
MULTNOMAH CO
Lieser Pt
Range Marker
Russell Landing
Ellsworth
SE 19TH STREET
MAXON ROAD
COLUMBIA
WASHINGTON
OREGON
Biddle Lake
Fish Hatchery
Light
Proposed Runway
Lower Point
Lemon Island
Sand Island
RIVER
PORTLAND
INTERNATIONAL AIRPORT
Existing North Runway
Existing South Runway
Approach Surface Elev. 82'±
Runway Elev. 40'
2090'±
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(BM 23)
Columbia
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NE LOMBARD ST
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Slough
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Proposed I-205
I-205 El. 62'± Clearance
COLUMBIA BLVD
UNION PACIFIC
Gravel Pit
SAND AND GRAVEL PITS
KILLINGSWORTH
SAND AND GRAVEL PIT
Post Office
Parkrose
NE SANDY BLVD
NE PRESCOTT
Trinity Sch
Rigler Sch
Scott Sch
Sacajawea Sch
Prescott Sch
St Rita Sch
Wellington
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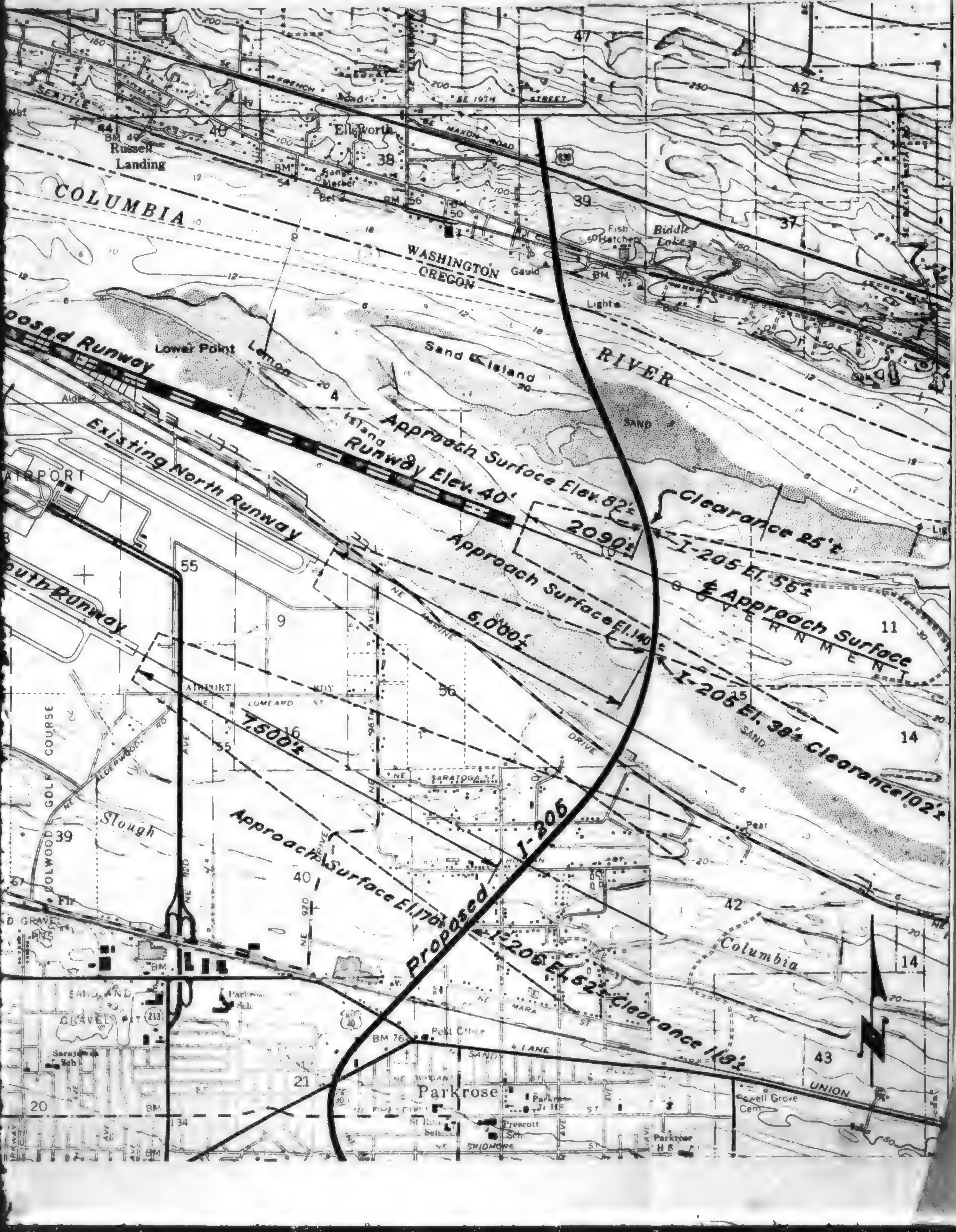
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WASHINGTON
OREGON
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Ellsworth
Fish Hatchery
Biddle Lake
Lower Point
Lemon Island
Sand Island
Proposed Runway
Runway Elev. 40'
Existing North Runway
South Runway
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Clearance 25'±
2090'±
I-205 El. 56'±
℄ Approach Surface
GOVERNMENT
Approach Surface El. 140'±
6,000'±
I-205 El. 38'± Clearance 102'±
7,500'±
Approach Surface El. 170'±
I-205 El. 52'± Clearance 118'±
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GOLF COURSE
Columbia
Parkrose
Post Office
Prescott Sch
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Powell Grove Cem
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SE 19TH STREET
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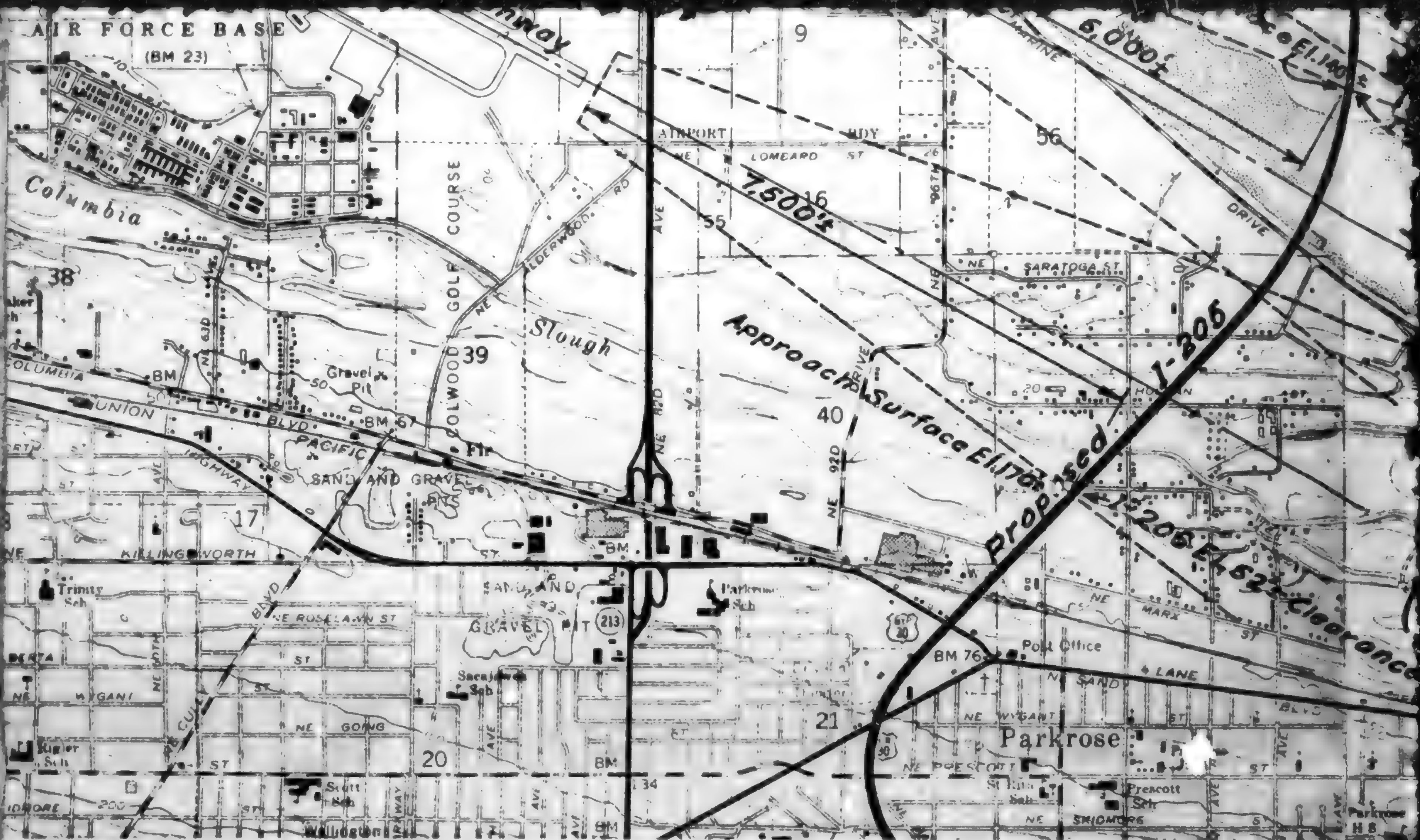
AIR FORCE BASE
(BM 23)
Columbia
Slough
GOLF COURSE
AIRPORT
LOMBARD ST
7,500'±
6,000'±
El.140'±
Approach Surface El.170'±
Proposed I-205
I-205 El.52'± Clearance
SARATOGA ST
COLUMBIA BLVD
UNION PACIFIC
Gravel Pit
SAND AND GRAVEL PITS
KILLINGSWORTH
SAND AND GRAVEL PIT
Parkrose
Post Office
Trinity Sch
Sacajawea Sch
Scott Sch
Prescott Sch
NE SANDY
NE PRESCOTT
NE SKIDMORE
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SKETCH MAP SUPPORTING FINDING OF PUBLIC INTEREST AT PORTLAND INTERNATIONAL
Multnomah County, Portland, Oregon

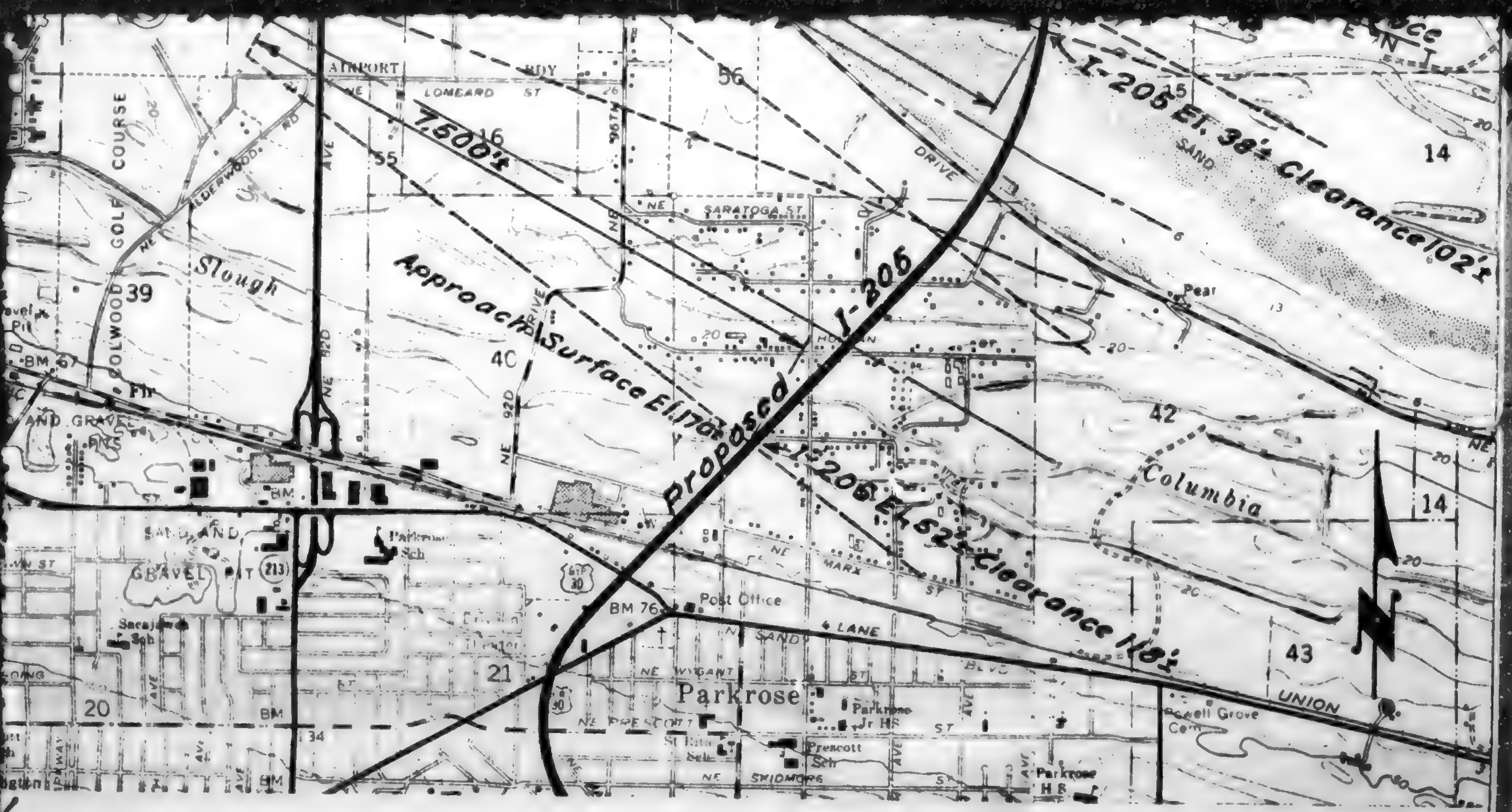
We concur that the new highway or highway improvement will result in clearances adequate for s
ment of air and highway traffic and the proposed project is in the public interest.

Robert W. Dunn
(Aeronautics Official)

(State Highway Department)

(Bureau of Public Roads)

| Proposed Runway | | Existing North Runway | | Existing South |
|---|---|---|---|---|
| Runway | Elev. 40' | Runway | Elev. 25' | Runway |
| Approach Surface | Elev. 82'± | Approach Surface | Elev. 140'± | Approach Surface |
| I-205 | Elev. 56'± | I-205 | Elev. 38'± | I-205 |
| Clearance | 26'± | Clearance | 102'± | Clearance |



7500'±
Approach Surface El.117'±
Proposed I-205
I-205 El. 38'± Clearance 102'±
I-205 El. 52'± Clearance 118'±
Airport
Lombard St
Saratoga St
Golf Course
Slough
Columbia
Parkrose
Post Office
Sandy Blvd
Union
Sand and Gravel Pit
Parkrose Jr HS
Prescott Sch
Parkrose HS

MAP SUPPORTING FINDING OF PUBLIC INTEREST AT PORTLAND INTERNATIONAL AIRPORT
Multnomah County, Portland, Oregon

ur that the new highway or highway improvement will result in clearances adequate for safe move-
ir and highway traffic and the proposed project is in the public interest.

Robert W. Dunn 14 June 68
(Aeronautics Official) Date

June 18, 1968
(State Highway Department) Date

6-21-68
(Bureau of Public Roads) Date

| roposed Runway | | Existing North Runway | | Existing South Runway | |
|---|---|---|---|---|---|
| | Elev. 40' | Runway | Elev. 25' | Runway | Elev. 25' |
| h Surface | Elev. 82'± | Approach Surface | Elev. 140'± | Approach Surface | Elev. 170'± |
| | Elev. 56'± | I-205 | Elev. 38'± | I-205 | Elev. 52'± |
| e | 26'± | Clearance | 102'± | Clearance | 118'± |

TC12
DOC

Br. #9555 ✓

File copy

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AUG 27 1969

COMMISSIONERS
DENNIS J. LINDSAY
President
LEE E. CALDWELL
Vice President
ERLING E. JACOBSEN
Secretary
ROBERT B. WILSON
Treasurer
LEW S. RUSSELL
HOWARD B. SOMERS
DONALD G. DRAKE
HAROLD S. HIRSCH
JOHN S. BRANDIS

GEORGE M. BALDWIN
General Manager

PORT OF PORTLAND

BOX 3529 PORTLAND, OREGON 97208 Telephone (503) 224-4260
Lindsay Building 710 S.W. 2nd Avenue

PO
Const
J.W.
Loc. R Br.

April 30, 1969

Mr. Ivan Merchant
Bridge Engineer
Oregon State Highway Department
State Highway Building
Salem, Oregon 97310

RECEIVED
OREGON STATE HIGHWAY DEPT.
BRIDGE DIVISION
AM MAY 2 - 1969 PM
7,8,9,10,11,12,1,2,3,4,5,6

Dear ~~Mr.~~ Ivan Merchant:

Subject: Portland International Airport Expansion
Revised Airport Layout Plan

Enclosed are two preliminary prints of the proposed airport layout plan, drawing No. PA 69-14, sheet 1 of 5, dated April 3, 1969, for which we have requested FAA approval.

The plan has been revised to conform with suggestions and recommendations made by FAA in their evaluation of the site. You will note, in particular, the relationship of the new north runway and the proposed I-205 bridge. The runway has been moved downstream per FAA's request to eliminate conflict between the runway instrumentation, approach lights and the middle marker with the bridge structure. This, therefore, eliminates any need for you to provide a structure on which the approach lights would be mounted as previously anticipated.

We believe that we will have Federal approval for this development in the relatively near future; hopefully, within the next 30 days. At that time or shortly thereafter, we will be in touch with you to discuss in greater detail the work of common interest to both the Port and the State Highway Department.

If we can provide additional information that would be helpful, please do not hesitate to call.

Best personal regards,

A. J. Heineman
Assistant General Manager

Orig. ltr. & copy of dwg to T.E., 5/7/69

1) Marine Drive U-Xing @ S. end of bridge,
2) I 205 - Interchange to

cc:
A. E. Johnson, Metro Engr. Office

NOTED
TOM EDWARDS

NOTED
D. O. Christensen

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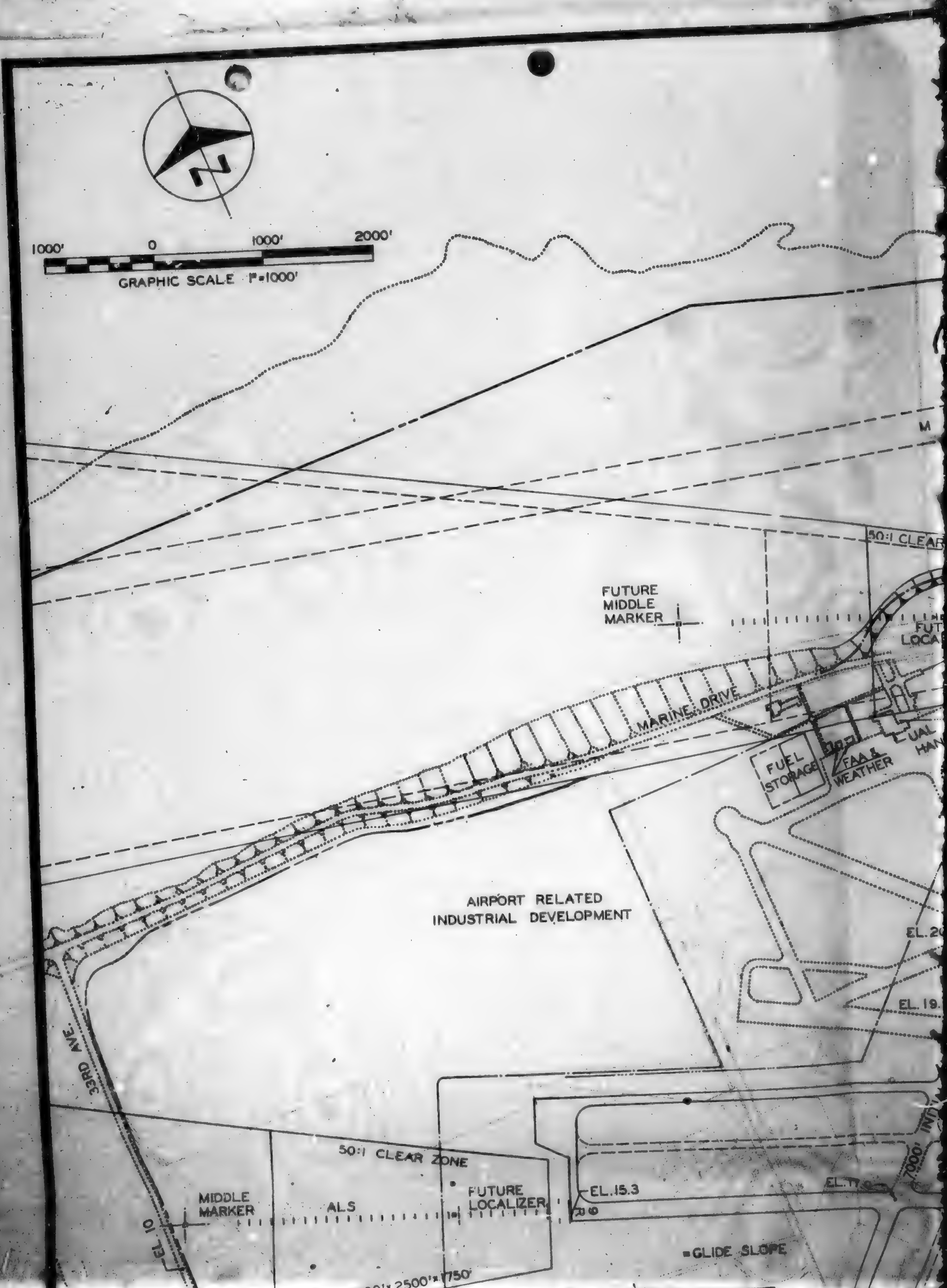
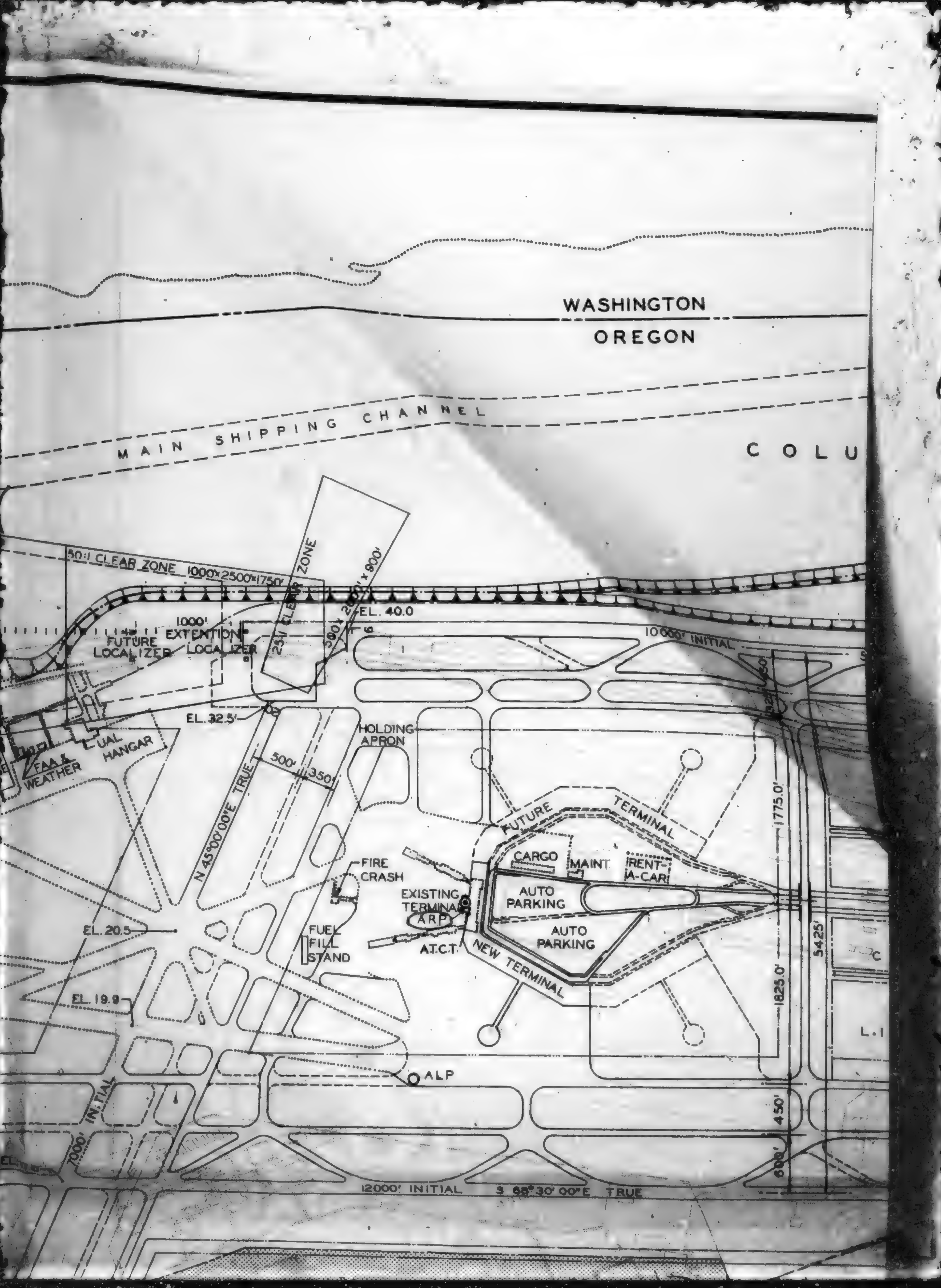
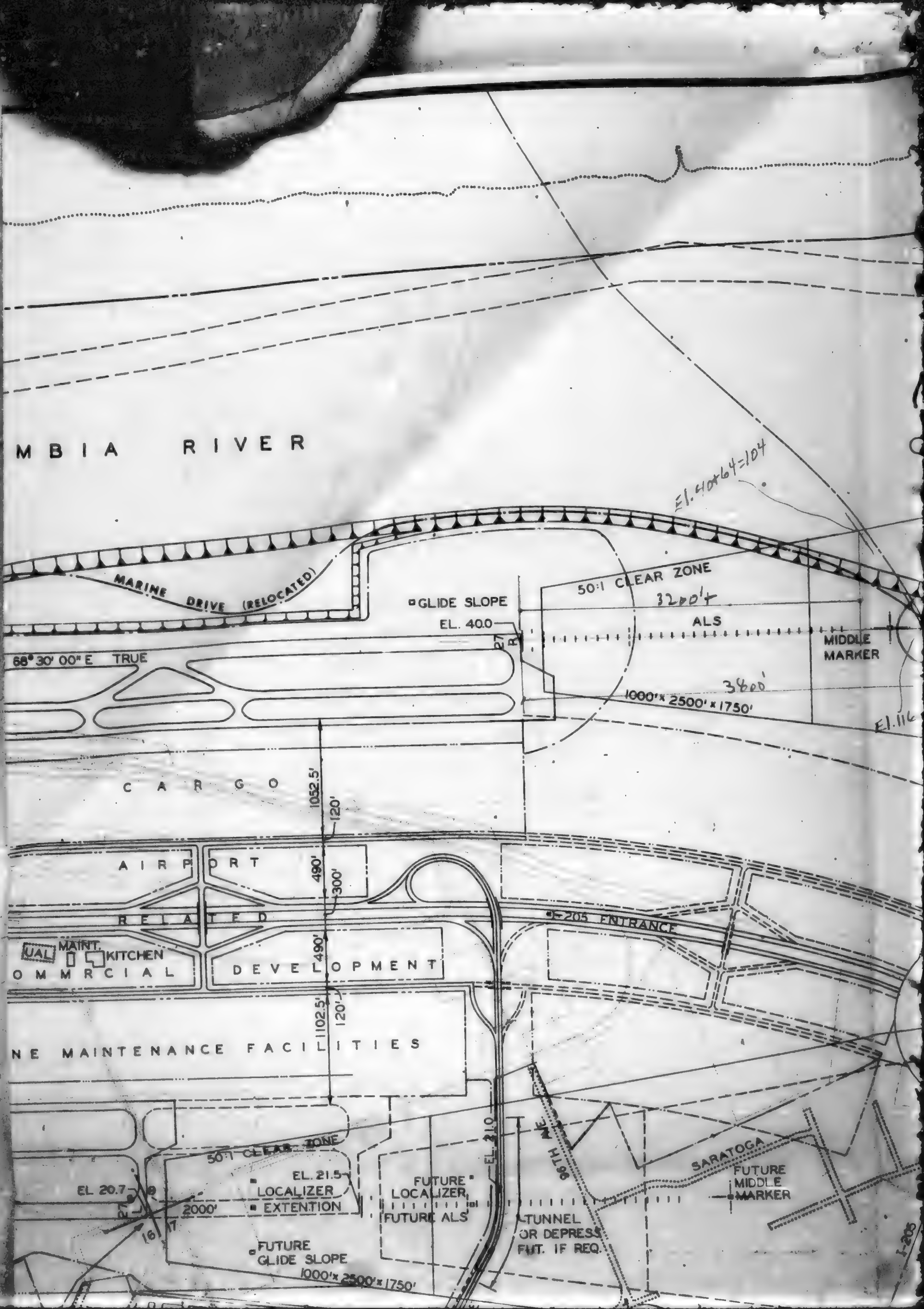
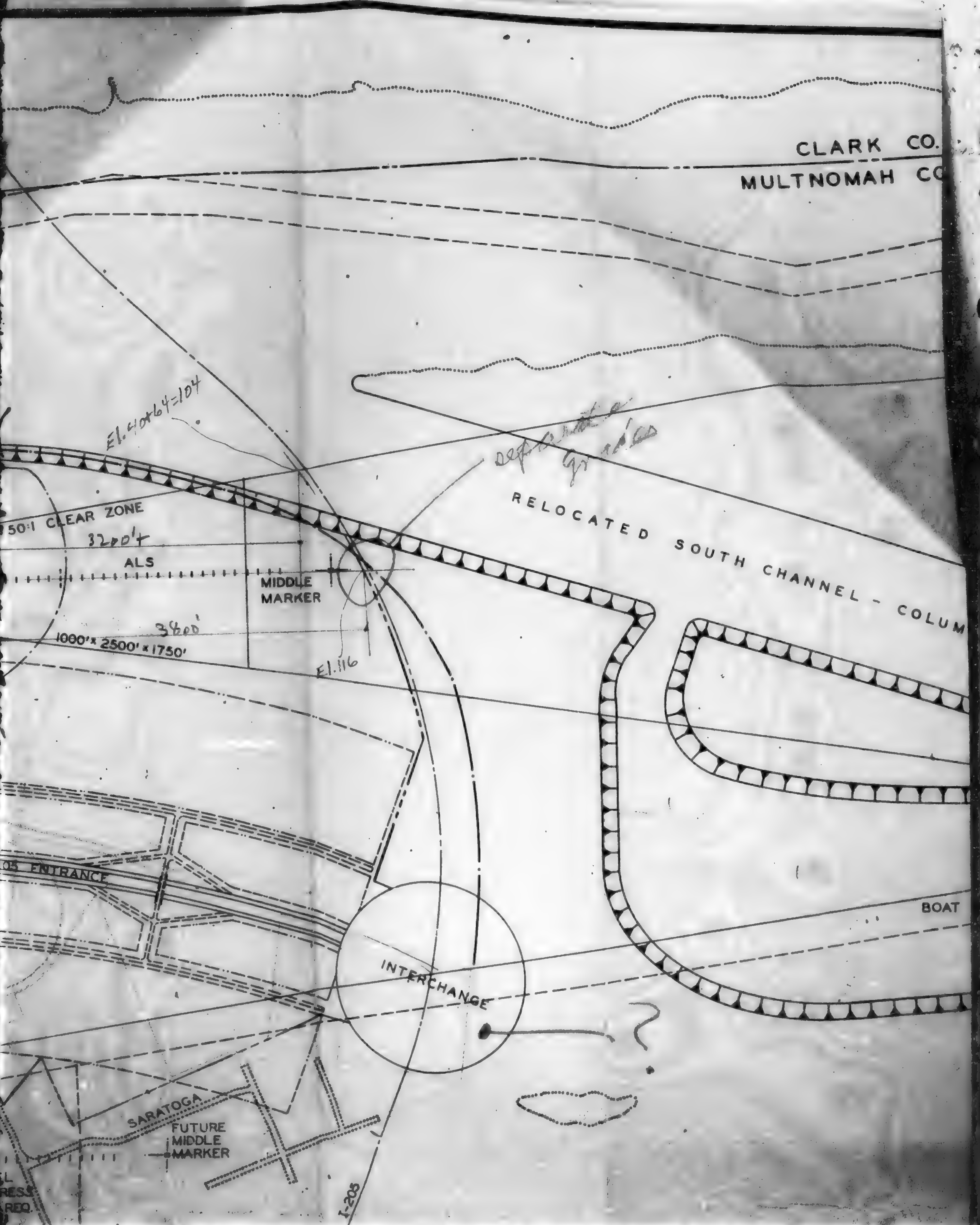
JUL 31 1969
OFFICE OF
STATE HIGHWAY ENGINEER

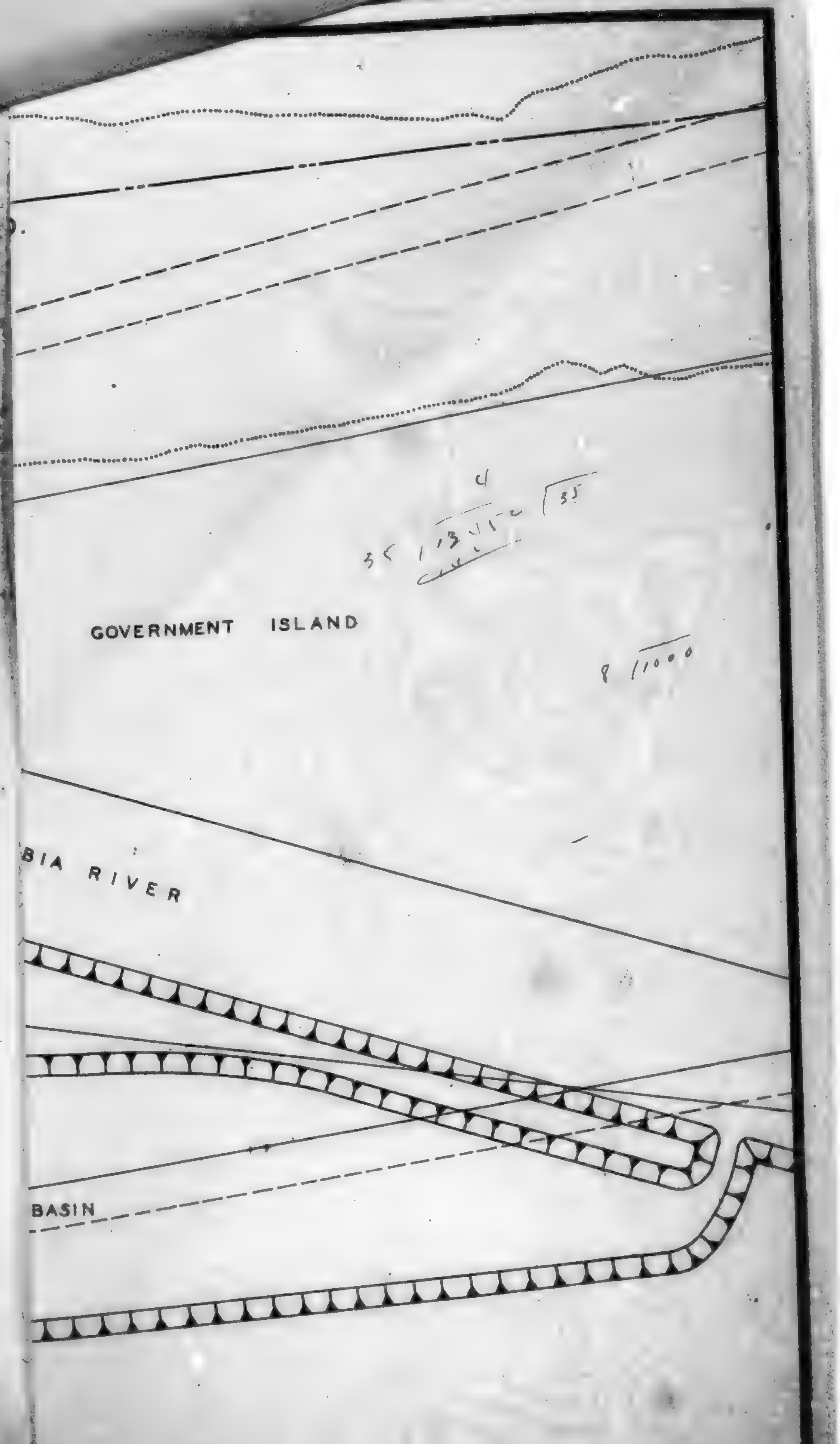

N
1000'
0
1000'
2000'
GRAPHIC SCALE 1"=1000'
M
50:1 CLEAR
FUTURE
MIDDLE
MARKER
FUTU
LOCA
MARINE DRIVE
FUEL STORAGE
FAA & WEATHER
UAL
HAN
AIRPORT RELATED INDUSTRIAL DEVELOPMENT
EL. 20
EL. 19.
33RD AVE.
50:1 CLEAR ZONE
MIDDLE MARKER
ALS
FUTURE LOCALIZER
EL. 15.3
EL. 17.0
7000' IN
EL 10
GLIDE SLOPE
1000'×2500'×1750'

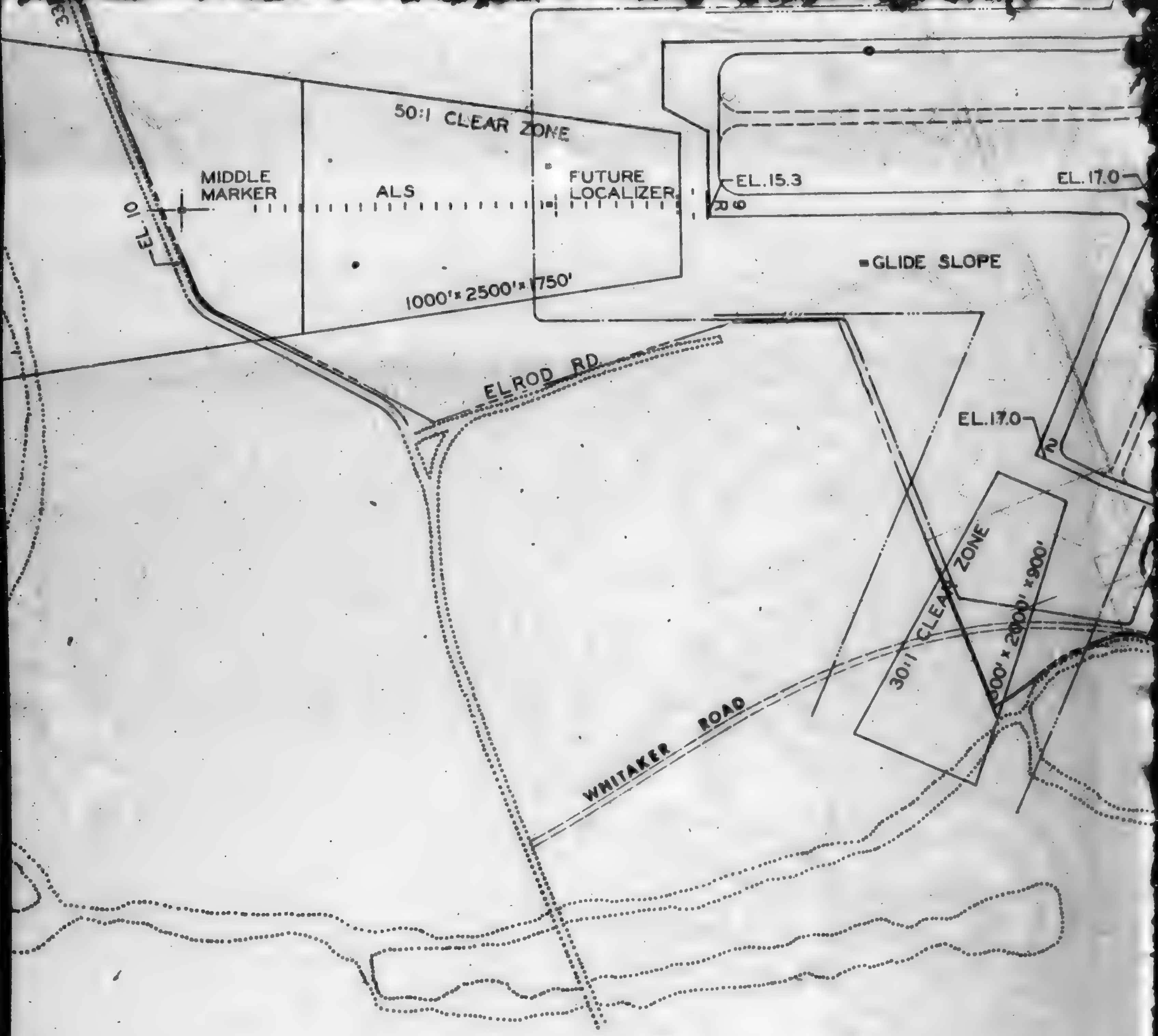


WASHINGTON
OREGON
MAIN SHIPPING CHANNEL
COLU
50:1 CLEAR ZONE 1000'x2500'x1750'
25:1 CLEAR ZONE
500'x 2000' x 900'
EL. 40.0
1000' EXTENTION
FUTURE LOCALIZER
LOCALIZER
10000' INITIAL
EL. 32.5'
HOLDING APRON
UAL HANGAR
FAA & WEATHER
500'
350'
N 45°00'00"E TRUE
FUTURE TERMINAL
CARGO
MAINT.
RENT-A-CAR
1775.0'
FIRE CRASH
EXISTING TERMINAL
ARP
AUTO PARKING
AUTO PARKING
EL. 20.5
FUEL FILL STAND
A.T.C.T.
NEW TERMINAL
5425'
1825.0'
EL. 19.9
ALP
7000' INITIAL
450'
600'
12000' INITIAL S 68°30'00"E TRUE
C
L.I


MBIA RIVER
El. 40+64=104
MARINE DRIVE (RELOCATED)
50:1 CLEAR ZONE
3200'+
GLIDE SLOPE
EL. 40.0
ALS
27R
MIDDLE MARKER
68° 30' 00" E TRUE
3800'
1000' x 2500' x 1750'
El. 116
CARGO
1052.5'
120'
AIRPORT
490'
300'
RELATED
I-205 ENTRANCE
UAL
MAINT.
KITCHEN
OMMRCIAL
DEVELOPMENT
490'
1102.5'
120'
NE MAINTENANCE FACILITIES
50:1 CLEAR ZONE
EL. 21.5
EL 20.7
LOCALIZER
EXTENTION
2000'
16
17
FUTURE LOCALIZER
FUTURE ALS
EL. 21.0
TUNNEL OR DEPRESS FUT. IF REQ.
96TH AVE
SARATOGA
FUTURE MIDDLE MARKER
FUTURE GLIDE SLOPE
1000' x 2500' x 1750'
I-205


CLARK CO.
MULTNOMAH CO
El. 40+64=104
[illegible] grade
50:1 CLEAR ZONE
3200'±
ALS
MIDDLE MARKER
3800'
1000' x 2500' x 1750'
El. 116
RELOCATED SOUTH CHANNEL - COLUM
05 ENTRANCE
BOAT
INTERCHANGE
?
SARATOGA
FUTURE MIDDLE MARKER
I-205
L
RESS
REQ.


4
35 | 1315 2 | 35
GOVERNMENT ISLAND
8 | 1000
BIA RIVER
BASIN


33
50:1 CLEAR ZONE
MIDDLE MARKER
ALS
FUTURE LOCALIZER
EL. 15.3
EL. 17.0
EL. 10
GLIDE SLOPE
1000'x2500'x1750'
ELROD RD.
EL. 17.0
2
30:1 CLEAR ZONE
500'x2000'x900'
WHITAKER ROAD

## LEGEND

| | |
|---|---|
| EXISTING TO BE ABANDONED | — — — |
| EXISTING TO BE RETAINED | ············ |
| NEW | ———— |
| FUTURE | – – – – – – |
| RELOCATED RIVER BANK | ⊤⊤⊤⊤⊤⊤⊤⊤⊤⊤ |
| AIRPORT PROPERTY LINE | ——— – ——— – ——— |
| DEVELOPEMENT PLOT LINE | ——— – – ——— |
| BUILDING RESTRICTION LINE | ——— ··· ——— |
| ℄ SCENIC MARINE DRIVE | ——— · ——— |
| ℄ PERIPHERAL ROAD | ——— - · - ——— |

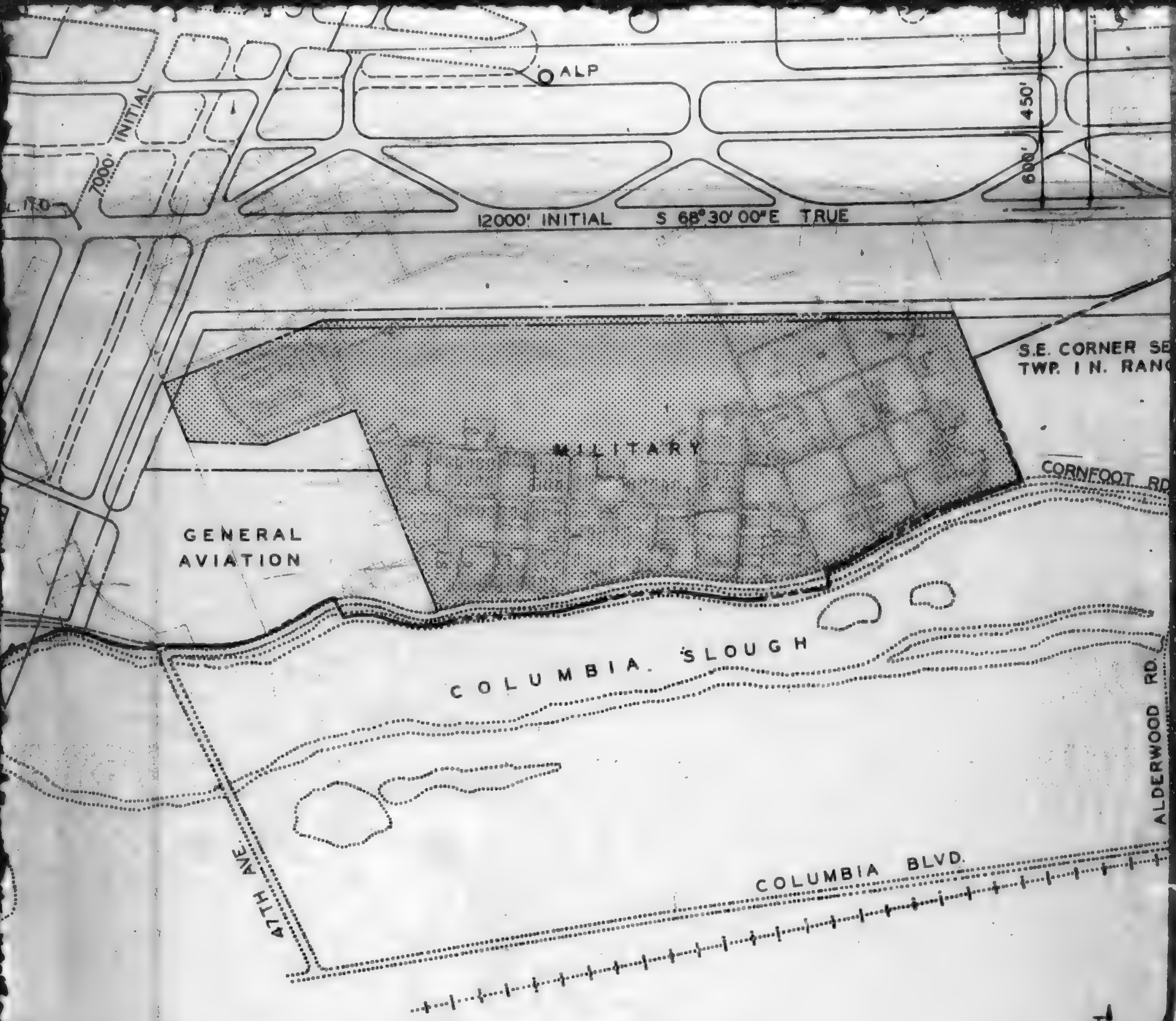
NOTES:
1. ALL R
2. ALL P
3. ALL R
4. SEE S
5. SEE SH
CONTR
6. SEE S

AIRPORT

AIRPORT

OFFICIA
MEAN M

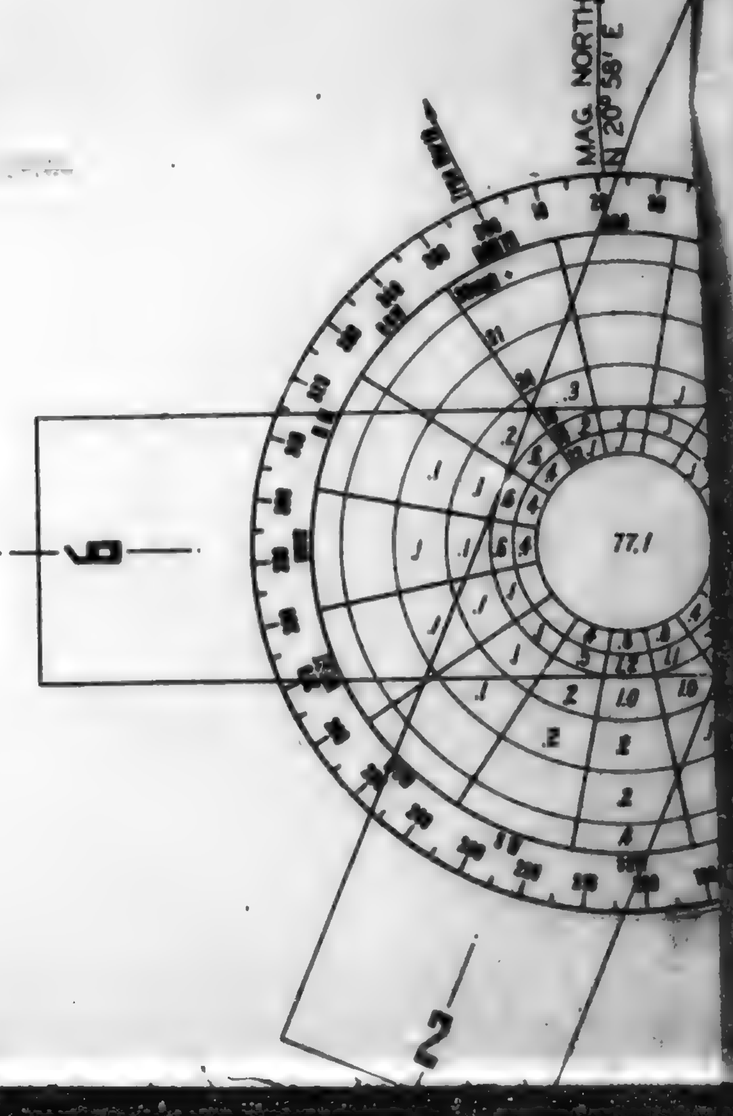
| RUNWAY DATA | | | |
|---|---|---|---|
| | 9L-27R | | 2 |
| | INITIAL | ULTIMATE | EXISTING |
| EFFECTIVE GRADIENT IN % | 0.00 | 0.00 | 0.10 |
| % WIND COVERAGE | 92.1 | 92.1 | 89.5 |
| INSTRUMENT RUNWAY | YES | YES | NO |
| PAVEMENT STRENGTH IN 1000 LBS | 350DT | 350DT | 350D |


ALP
7000' INITIAL
L. 17.0
450'
600'
12000' INITIAL S 68°30'00"E TRUE
S.E. CORNER SE
TWP. 1 N. RANG
MILITARY
CORNFOOT RD
GENERAL AVIATION
COLUMBIA SLOUGH
ALDERWOOD RD.
47TH AVE.
COLUMBIA BLVD.

TES:

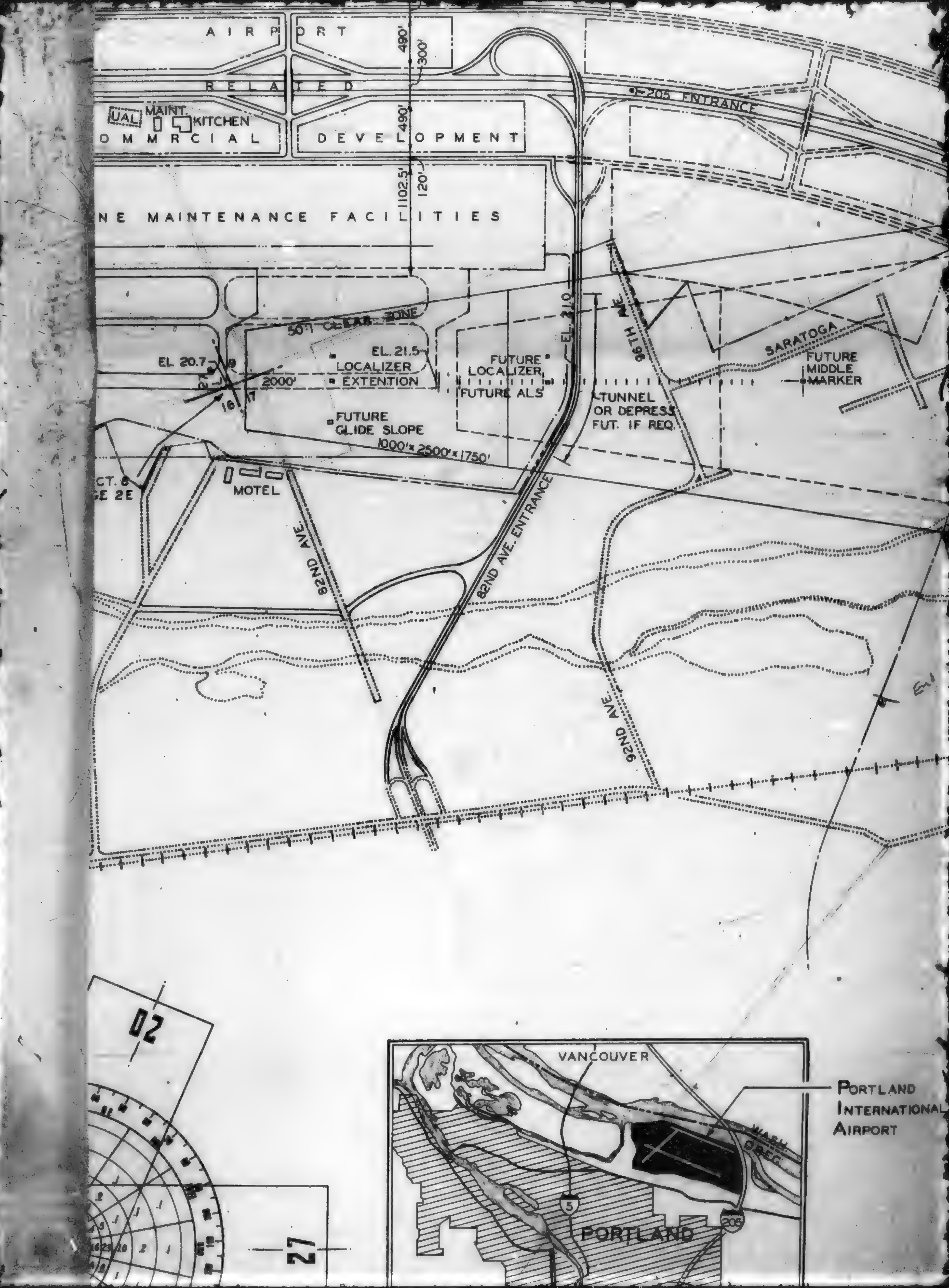
1. ALL RUNWAYS ARE 150' WIDE AND ALL TAXIWAYS ARE 75' WIDE.
2. ALL PAVED AIRFIELD SURFACES TO HAVE 25' WIDE STABILIZED SHOULDERS.
3. ALL RUNWAY ENDS TO HAVE 150' x 200' BLAST PADS.
4. SEE SHEET 2 FOR APPROACH & CLEAR ZONE PLAN & PROFILE.
5. SEE SHEET 3 FOR GENERAL ELEVATIONS DRAINAGE AREAS & CONTROL TOWER SITE LINE RESTRICTIONS.
6. SEE SHEETS 4 & 5 FOR TERMINAL AREA LAYOUT.

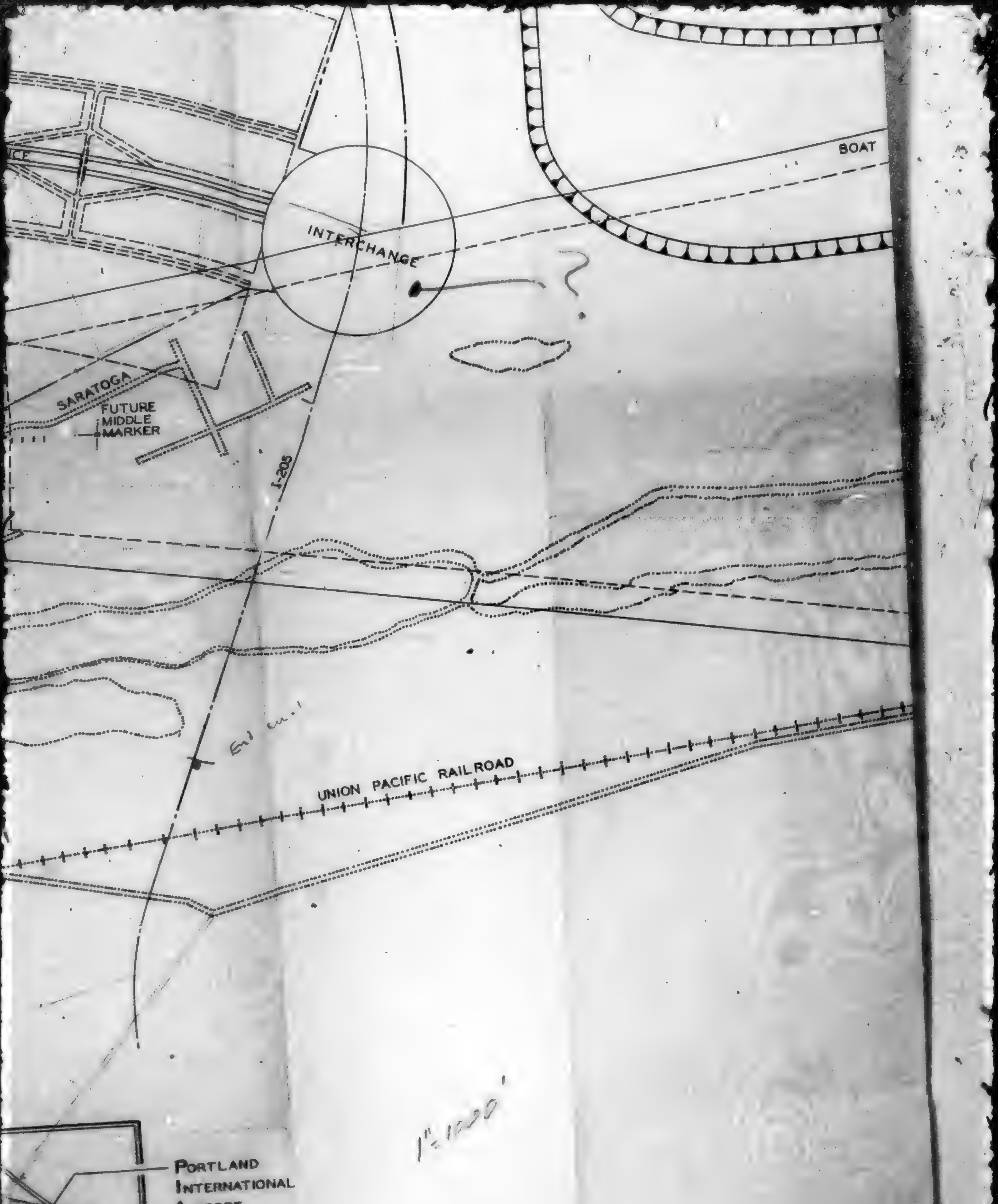
AIRPORT REFERENCE POINT — LAT. 45° 35' 21" N
LONG. 122° 35' 33" W
AIRPORT LOCATION POINT — LAT. 45° 35' 10" N
LONG. 122° 35' 53" W
OFFICIAL AIRPORT ELEVATION EL. 40.0'
MEAN MAXIMUM TEMPERATURE OF HOTTEST MONTH 79.2° F


MAG. NORTH
N 20° 58' E
9
77.1
2

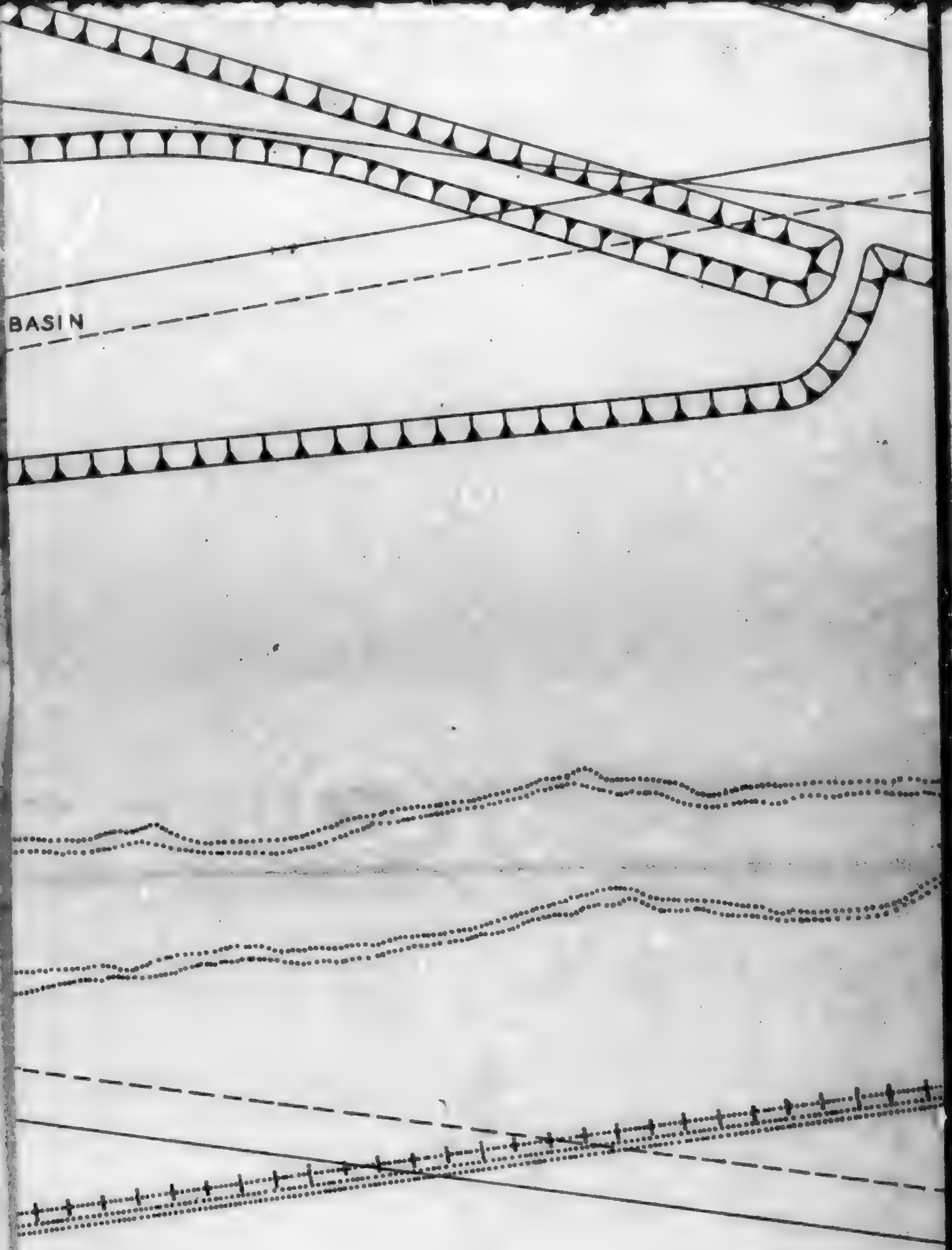
DATA

| 2-20 | | 9R-27L | |
|---|---|---|---|
| XISTING | ULTIMATE | INITIAL | ULTIMATE |
| 0.10 | 0.21 | 0.04 | 0.04 |
| 89.5 | 89.5 | 92.1 | 92.1 |


AIRPORT
RELATED
OMMRCIAL
DEVELOPMENT
UAL
MAINT.
KITCHEN
490'
300'
490'
1102.5'
120'
NE MAINTENANCE FACILITIES
I-205 ENTRANCE
50:1 CLEAR ZONE
EL 20.7
EL. 21.5
LOCALIZER
EXTENTION
2000'
FUTURE
GLIDE SLOPE
1000'x 2500'x 1750'
FUTURE
LOCALIZER
FUTURE ALS
EL. 21.0
96TH AVE
TUNNEL
OR DEPRESS
FUT. IF REQ.
SARATOGA
FUTURE
MIDDLE
MARKER
CT. 6
GE 2E
MOTEL
82ND AVE
82ND AVE. ENTRANCE
92ND AVE
End
02
27
VANCOUVER
PORTLAND
INTERNATIONAL
AIRPORT
WASH.
OREG.
5
205
PORTLAND

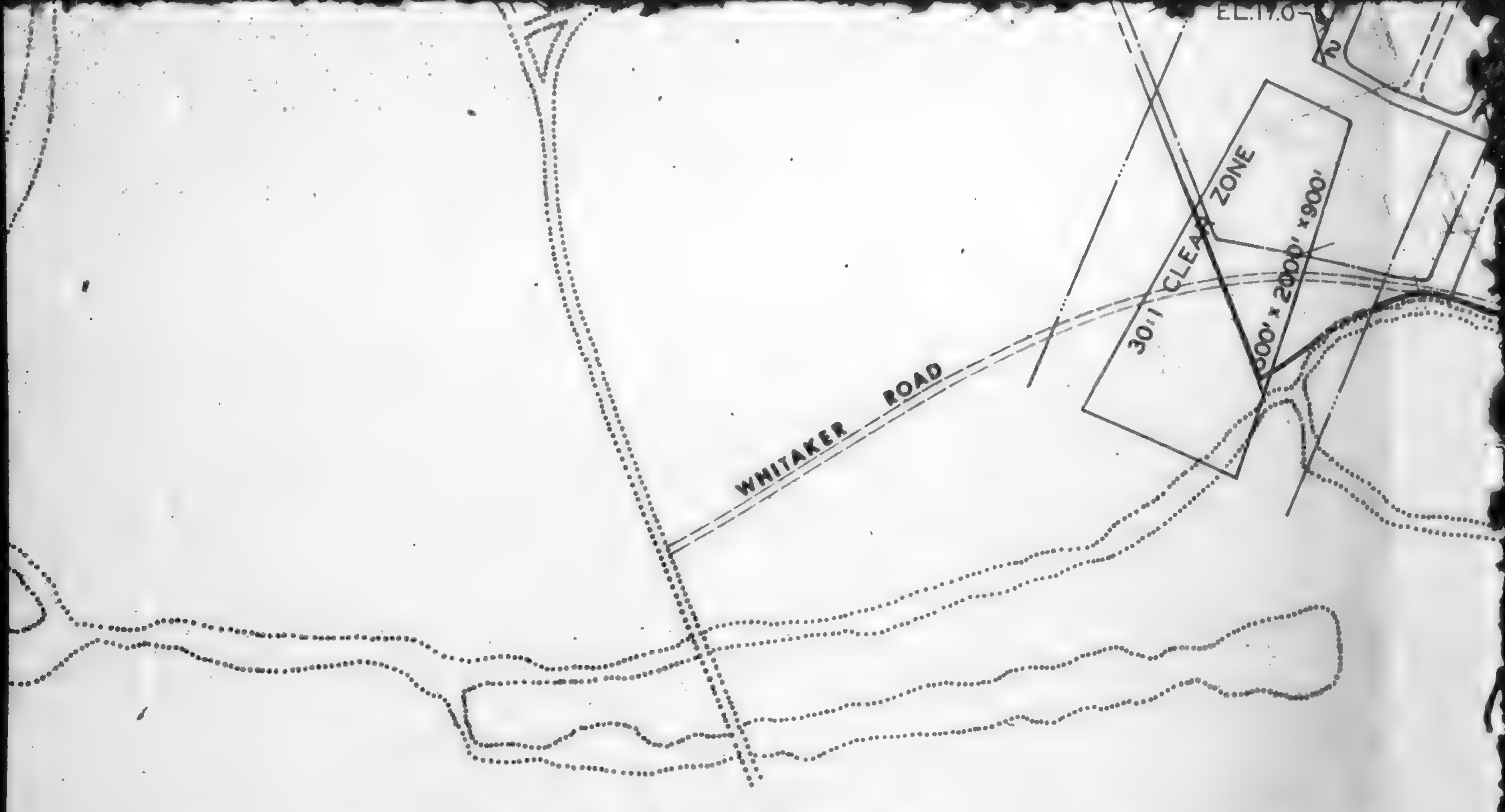

BOAT
INTERCHANGE
SARATOGA
FUTURE
MIDDLE
MARKER
I-205
UNION PACIFIC RAILROAD
PORTLAND
INTERNATIONAL
AIRPORT
WASH.
OREG.
205

1"=1000'



PRELIMINARY

4255



LEGEND

EXISTING TO BE ABANDONED
EXISTING TO BE RETAINED
NEW
FUTURE
RELOCATED RIVER BANK
AIRPORT PROPERTY LINE
DEVELOPEMENT PLOT LINE
BUILDING RESTRICTION LINE
℄ SCENIC MARINE DRIVE
℄ PERIPHERAL ROAD

NOTES:

1. ALL RUNW
2. ALL PAVED
3. ALL RUNW
4. SEE SHEET
5. SEE SHEET
CONTROL
6. SEE SHEET

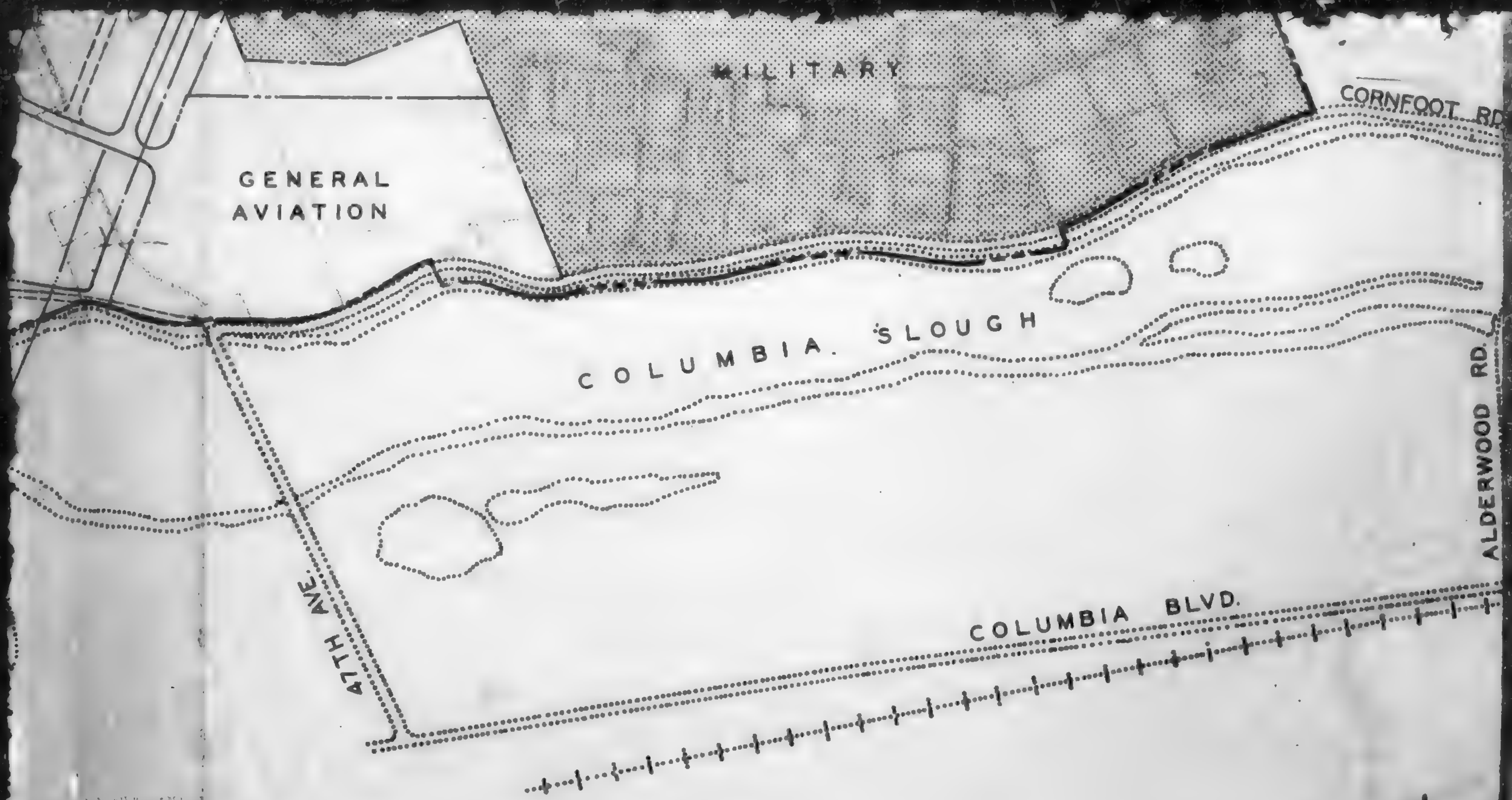
AIRPORT REF

AIRPORT LOC

OFFICIAL A
MEAN MAXIM

RUNWAY DATA

| | 9L-27R | | 2-2 | |
|---|---|---|---|---|
| | INITIAL | ULTIMATE | EXISTING | |
| EFFECTIVE GRADIENT IN % | 0.00 | 0.00 | 0.10 | |
| % WIND COVERAGE | 92.1 | 92.1 | 89.5 | |
| INSTRUMENT RUNWAY | YES | YES | NO | |
| PAVEMENT STRENGTH IN 1000 LBS. | 350DT | 350DT, | 350DT | |
| APPROACH SURFACE | 50:1 | 50:1 | 2-40:1<br>20-19:1 | |
| RUNWAY LIGHTING | HIRL | HIRL | HIRL | |
| RUNWAY MARKING | ALL WTHR | ALL WTHR | ALL WTHR | |
| NAVIGATIONAL AIDS | ALS & ILS | ALS & ILS | NONE | |
| CENTERLINE & TOUCHDOWN ZONE LIGHTS | YES | YES | NO | |



TES:

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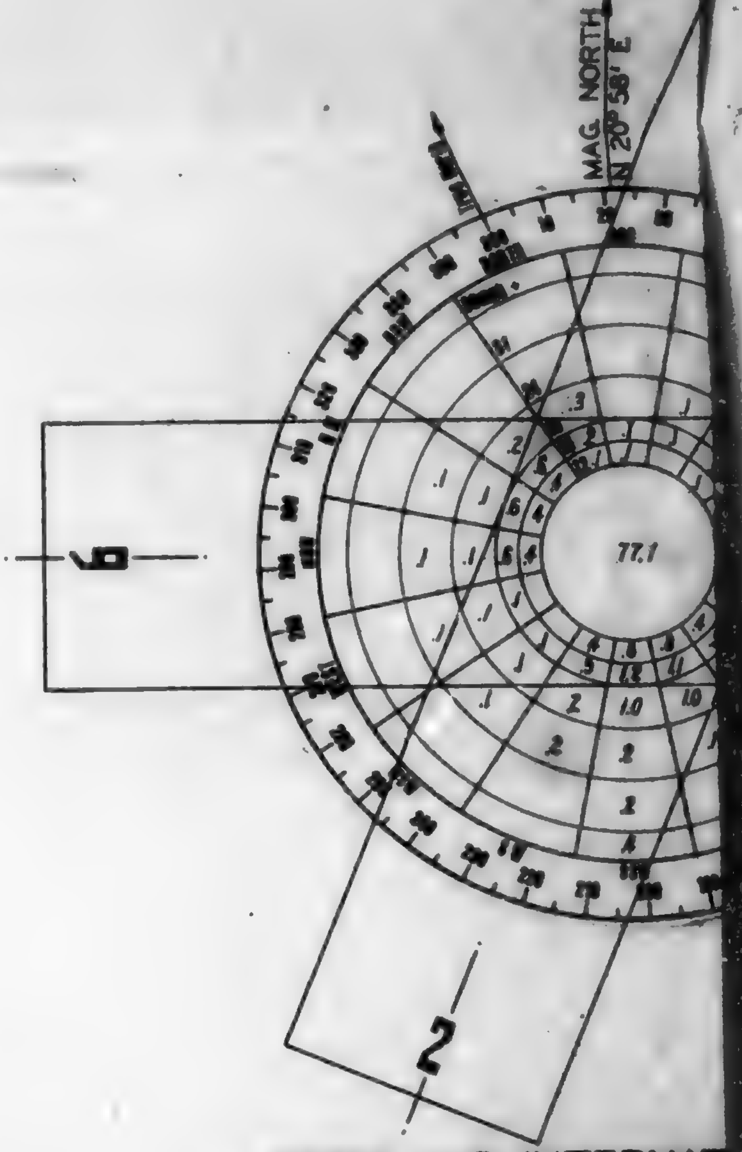
AIRPORT REFERENCE POINT — LAT. 45° 35' 21" N
LONG. 122° 35' 33" W
AIRPORT LOCATION POINT — LAT. 45° 35' 10" N
LONG. 122° 35' 53" W
OFFICIAL AIRPORT ELEVATION EL. 40.0'
MEAN MAXIMUM TEMPERATURE OF HOTTEST MONTH 79.2° F

| DATA | | | |
|---|---|---|---|
| 2-20 | | 9R-27L | |
| ISTING | ULTIMATE | INITIAL | ULTIMATE |
| 0.10 | 0.21 | 0.04 | 0.04 |
| 89.5 | 89.5 | 92.1 | 92.1 |
| NO | NO | YES | YES |
| 50DT | 350DT | 350DT | 350DT |
| -40:1<br>-19:1 | 2-30:1<br>20-25:1 | 50:1 | 50:1 |
| HIRL | HIRL | HIRL | HIRL |
| L WTHR | ALL WTHR | ALL WTHR | ALL WTHR |
| NONE | NONE | ALS & ILS | ALS & ILS |
| NO | NO | YES | YES |



PORTLAND INTERNAT

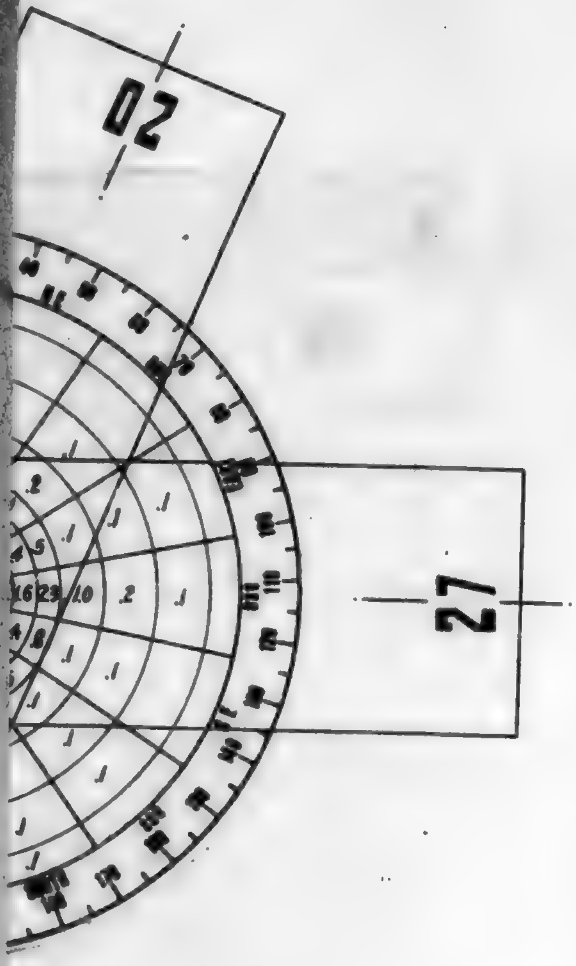
WIND RO

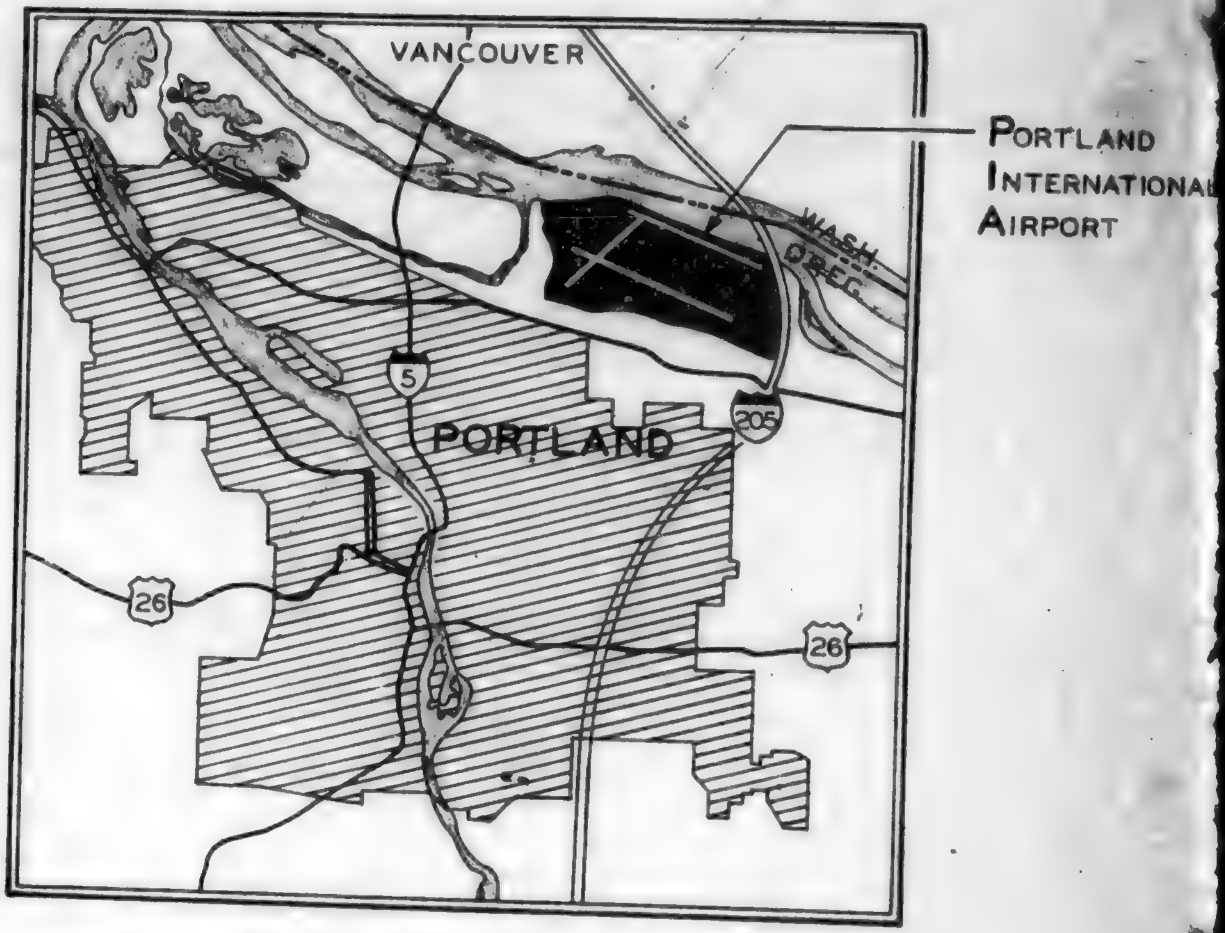
WIND DATA FROM US DE
SUMMARY NO. 82-35

WIND COVE

R/W 9-27 9
R/W 2-20 8
COMBINED 9
ALL WEATHE

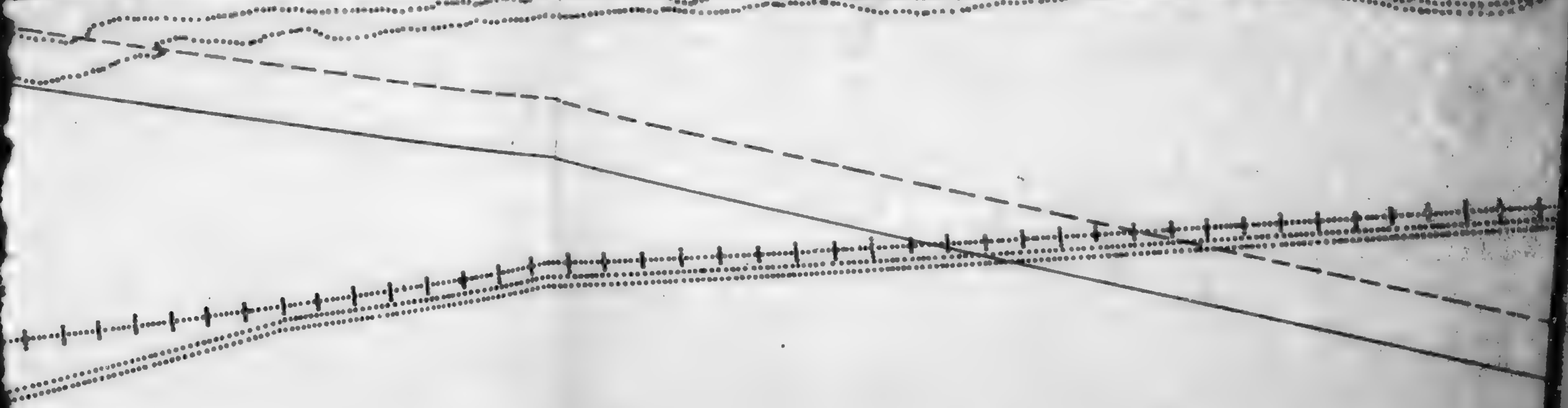
82ND AVE.
82ND AVE. ENTR
92ND AVE.




VANCOUVER
PORTLAND
INTERNATIONAL
AIRPORT
WASH.
OREG.
5
205
PORTLAND
26
26

LOCATION MAP

IONAL AIRPORT
SE
PT OF COMMERCE
1951 - 1960
RAGE
2.1 %
0.5 %
7.8 %
R



PRELIMINARY

Bx. #9555

THE PORT OF PORTLAND
PORTLAND, OREGON

PORTLAND INTERNATIONAL AIRPORT
AIRPORT LAYOUT PLAN

DESIGNED BY
DRAWN BY
CHECKED BY
SUBMITTED BY BURNS & McDONNELL
APPROVED BY
CHIEF ENGINEER
RECOMMENDED BY
DEPT. HEAD
APPROVED BY
GENERAL MANAGER
DEPT.
DATE APRIL 3, 1969
SCALE
DRAWING NO. PA 69-14 1 OF 5

7905

COPY OF A COPY

RECEIVED
JAN 20 1970
FOR FILING

UNITED STATES
DEPARTMENT OF THE INTERIOR
Bureau Of Outdoor Recreation
Washington, D. C. 20240

April 10, 1969

NOTED
F. B. KLABOE

Memorandum

To: Under Secretary

From: Acting Director, Bureau of Outdoor Recreation

Subject: Portland Airport Dredge and Fill

This memorandum is in response to your memorandum of March 19, requesting our recommendation for a Departmental position and our rationale for it.

It is recommended that a Departmental position of opposition to granting of the permit be taken at this time.

The rationale behind this recommendation is that (1) the specific airport proposal which gives rise to the need for a dredge and fill permit has not yet been approved by the Department of Transportation and (2) no use of a dredge and fill permit can be made until a specific airport proposal has been approved, therefore, approval action at this time is premature.

It is inappropriate for the Department of the Interior to place itself in a position of approving a series of isolated steps or actions and later finding that the separate action items wrapped together and viewed as an integrated unit are detrimental to the environmental integrity of a natural resource area and are in reality a serious intrusion that damages the very conservation values the Department is charged to preserve.

Already a bridge permit for a crossing of the Columbia River has been sought in June of 1968 (Coast Guard application 68-10 dated June 6, 1968). The Department of the Interior Coordinator for the Pacific Northwest, acting on recommendations from the appropriate regional offices of the Department, by a letter dated February 6, 1969 to the Seattle Coast Guard District indicated no opposition to the proposed bridge. The new bridge design and even specific location remain tentative until the airport proposal is made final.

I believe the Department's position on the bridge is not locked in and that we should reconsider our no opposition stance. Concurrently, with seeking a dredge and fill permit from the Corps of Engineers, the Portland Port Authority has sought approval of airspace and safety for the expanded airport. A hearing regarding the dredge and fill application was held August 1, 1968, by the Corps of Engineers; a hearing was held September 25-26, 1968 by the Federal Aviation Administration.

NOTED
LLOYD P. SHAW

The Federal Aviation Administration has approved the use of airspace and safety aspects of an expanded airport in the present location of the Portland International Airport. In the approval, FAA has carefully qualified that the approval was limited to the space-safety aspects and did not cover or pre-judge a specific airport proposal or a ruling under Section 4(f) of the Department of Transportation Act.

Four basic alternative concepts for the airport facility have been considered by the Portland Port Authority:

A. Relocation of Runway 10R/28L to the South (eliminated because of major interference with military activities).

B. Relocation of Runway 10L/28R to the North (dropped because of interference with Columbia River flow).

C. Relocation of airport to a new site (eliminated because of cost and new sites requiring development time which would not meet the increased air service demands).

D. Realignment of primary Runways and expansion to the North and South (this is concept selected).

The concept selected as the best solution, (D above), is premised on recovery or at any rate agreements by the military of a substantial (300 or 400 acres) part of the military installation to be used for the airport. Also, the National Guard air operations could continue for an interim period which is another way of recognizing that the military use would either cease or be moved to another place. The premise of the selected plan thus includes favorable action from the military which likewise would again make alternative concept A possible. If the military problem can be worked out, which is essential to both concepts A and D, then it is possible to meet the needs for an enlarged Portland International Airport without any interference, including dredge and fill operations, in the Columbia River itself.

There is growing concern over increased environmental intrusions, especially in urban areas and the need for preserving natural areas close to population centers is acute. Loss of Government Island Wildlife Refuge at this time would be permanent even though future plans might ultimately lead to an airport removed from the urban concentration. At best, a replacement area for the existing refuge would result in no net increase in conservation/open-space areas.

This then, is the rationale for the Department of the Interior to oppose granting the dredge and fill permit until we have at hand a specific airport plan. The interest of the people, the consideration of all reasonable and prudent alternatives, and supporting the National policy that special effort should be made to preserve the natural beauty of the countryside, all would be served.

(Sgd.) A. Heaton Underhill

Acting Director

BOR:JFAnderson:ogm 4/9/69

cc:
Bureau of Sport Fisheries and Wildlife
Interior Coordinator, Mr. Dwyer, Portland
Regional Office, Pacific Northwest

RECEIVED
JAN 7 1970
OFFICE OF
STATE HIGHWAY ENGINEER

COPY

United States Department of the Interior
Office of the Secretary
Washington, D.C. 20240

May 19, 1969

Dear General Koisch:

Responding to your February 5 letter concerning an application of the Port of Portland for a permit for dredge and fill operations incident to the expansion of Portland International Airport, we offer the following comment.

The Department of the Interior has interests in seeing that the game refuge, recreational facilities, and maintenance of water quality during dredging operations be given due consideration. It appears that the Port of Portland will be able and willing to meet the minimum conditions we consider necessary -- with regard to these three matters.

Sincerely yours,

/s/ Russell E. Train

Under Secretary

Brigadier General E. P. Koisch, USA
Director of Civil Works
Office of the Chief of Engineers
U. S. Department of the Army
Washington, D.C. 20315

cc: Secretary's files
Secretary's Reading files (2)
SS files (salmon)
Pacific Northwest Regional Coordinator
Under Secretary Train's Chron. file
James C. Rettie
JCR/lrt/5/16/69

8105

RECEIVED
FEB 19 1969

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

SEATTLE AREA OFFICE
FAA BUILDING, BOEING FIELD
SEATTLE, WASHINGTON 98108

2-14-69

In Reply
Refer To: SEA-500

## AERONAUTICAL STUDY NO. 68-SEA-38-NRF

## DETERMINATION OF AIRSPACE USE

On June 13, 1968, the FAA circularized for public comment a proposal by the Port of Portland to replace the two principal runways 10R/28L and 10L/28R with two new runways 5,000 feet apart realigned to 9R/27L and 9L/27R.

The FAA letter "To All Concerned" stated that objectors to the proposal should state valid aeronautical reasons how the proposal would adversely affect safety of air navigation. Because of the considerable public interest and the many comments received, the FAA conducted an Informal Public Hearing in Portland, Oregon, on September 25 and 26, 1968.

Both in writing and at the hearing many comments were received in support of and in opposition to the proposal. Those supporting the proposal spoke to the need for expanding the capability of the airport to meet the needs of the public for air transportation. They called attention to the advantages of the present airport location in serving the public because of its central location in the greater Portland-Vancouver metropolitan area, and its proximity to rail, highway and water transportation facilities for an integrated transportation system. The objections were primarily concerned with possible increased noise, possible effects on river hydraulics, and effects on the recreation areas, wildlife and natural beauty.

### Effect on Other Airports

No objections to the proposed new runways were received based on safe and efficient use of airspace at other airports in the vicinity.

The FAA study developed the following facts. The extended centerline of the existing runway 10L/28R passes directly over Pearson Airpark at Vancouver, Washington, which is located 3.5 miles northwest of the end of runway 10L. Because of potential traffic conflictions between aircraft using runway 10L/28R and aircraft using Pearson Airpark, the FAA on October 6, 1967 issued a Special Air Traffic Rule in FAR 93, Section H, requiring aircraft using Pearson Airpark to contact Portland Tower and to fly all traffic patterns to the north of Pearson Airpark. The extended centerline of the proposed new runway, 9L/27R, would pass approximately 2,000 feet south of Pearson Airpark. Safety of operations at the two airports would be improved by providing lateral separation between the flight paths of aircraft using the two airports.

Copy Evan Merchant 2-14-69

cc Edwards
Klabal
2-17-69

NOTED
TOM EDWARDS

NOTED
R. L. PORTER

The extended centerline of the proposed runway 9L/27R would pass directly over Troutdale Airport eight miles to the east. A 2½ degree glide slope would be at an elevation of 1830 feet MSL over Troutdale Airport. Aircraft operating IFR or VFR using runway 9L/27R at Portland would normally be at or above the glide slope altitude. The field elevation at Troutdale is 36 feet MSL and the traffic patterns are presently flown at 1000 feet above ground. A traffic pattern altitude of 800 feet above the airport elevation is feasible for Troutdale and the FAA will recommend this altitude for Troutdale patterns if the new runway is constructed. This will provide approximately 1000 feet vertical separation from aircraft on approach to Portland. In addition the FAA operates a control tower at Troutdale Airport 16 hours per day during the active traffic periods. The vertical separation between flight patterns and the control tower service will provide adequate safety for the flights using both Troutdale Airport and Portland International Airport.

The proposed new runways would not affect other airports in the vicinity to any greater extent than the existing runways at Portland International Airport.

The FAA study concluded that the construction of the two new runways proposed at Portland International Airport would have no adverse affect on safe and efficient use of airspace at other airports in the vicinity, and would result in some improvement in safety of operations in the vicinity of Pearson Airpark.

The KGW radio towers 636 feet AMSL located approximately 16,800 feet west of the threshold of the proposed Runway 9R will penetrate the obstruction standards of FAR 77.27(b) approach surface by 240 feet. The Port of Portland has recognized this obstruction and stated in their presentations at the FAA hearing that these radio towers will be relocated or lowered if the plan is approved.

## Noise

Many residents of the City of Vancouver, Washington, objected to the proposed construction because of anticipated additional aircraft noise. The FAA recognizes aircraft noise as a factor in its airspace review of airport proposals.

The FAA study showed that at the present time aircraft landing to the east, or taking off to the west on the north parallel runway, 10L/28R, pass over the downtown area of Vancouver. Approach and departure paths to the west for the new north parallel runway 9L/27R would be shifted southward over the Columbia River and south of the City of Vancouver. Similarly, aircraft taking off to the east or landing to the west on the present south parallel runway 10R/28L pass over or near the Parkrose area east of Portland. The new south runway 9R/27L would shift the extended centerline of this runway northward which would reduce noise exposure to residents of the Parkrose area.

The new north parallel runway 9L/27R is proposed to be built partly on a fill in the Columbia River and will be closer to the north bank of the Columbia River adjacent to the airport by amounts varying from 500 to 2,500 feet as compared to the present north parallel runway 10L/28R. Applying typical noise contour curves to the existing and proposed runways indicates there will be a slight increase in noise in a relatively small area along the north bank of the river opposite the airport. The much larger areas of high noise level extending from the ends of the runways along the extension of the runway centerlines will be shifted southward away from Vancouver to over the Columbia River and the bottom lands on the south side of the river. The new areas affected are not primarily residential areas.

The FAA study concluded that there will be an overall reduction of noise exposure over the downtown area and principal residential areas of Vancouver, Washington, by construction of the new runways. In addition there should be a slight improvement in the Parkrose area southeast of the airport.

## River Hydraulics

Some objections received by the FAA concerned possible adverse effects on the Columbia River hydraulics.

The U. S. Army Corps of Engineers solicited comments and conducted a public hearing in Portland on August 1, 1968 to assist them in studying possible effects on the Columbia River of the proposed filling and dredging. That agency is now reviewing and studying the proposal and will be issuing a separate determination on these matters.

## Other Effects

The FAA received comments both in support of and objecting to the proposed new runways with respect to the effect on recreational areas, wildlife refuges, the historic character of the river, and the natural beauty of the river.

Under the Department of Transportation Act both the Department of Transportation and the Department of Interior must give consideration to the effects of proposed airport construction on public parks, recreational areas, historic sites and wildlife refuges prior to granting of any federal funds for assistance on new airport construction.

Consideration of these factors is not a part of this determination which is concerned with the safe and efficient use of airspace.

Runway 2/20

Some persons commenting on this proposal referred to the current project for extension of runway 2/20. On February 16, 1966, the FAA in a letter "To All Concerned" invited public comment on the proposal to extend runway 2/20 in a southwesterly direction. In addition to the normal distribution of this notice to approximately 125 organizations and persons on our regular mailing list, copies were mailed to Portland and Vancouver newspapers, city officials and airport managements. No objections were received and that proposal was found acceptable from an airspace use standpoint on September 19, 1967. Extension of runway 2/20 is not a part of the proposal now under consideration and is not being evaluated in this study since it was reviewed previously.

Determination

Therefore, pursuant to the authority delegated to me, I determine that there is no objection by the Federal Aviation Administration from the standpoint of safe and efficient use of airspace to the construction of two new parallel runways, 9R/27L and 9L/27R, at the Portland International Airport as proposed by the Port of Portland.

This determination is effective February 14, 1969, and expires on December 31, 1971, unless construction of the new runways has started, or the determination is otherwise extended.

In order to permit the optimum instrument approach minimums and realize the full potential of these new runways, it will be necessary to relocate or lower the KGW radio antennas so they do not exceed the obstruction standards in Federal Aviation Regulations, Part 77. Commitments have been received from the KGW Radio Station and the Port of Portland to accomplish this.

Fred S. McKnight

FRED S. MCKNIGHT
Chief, Air Traffic Branch, SEA-500
Oregon and Washington

Issued in Seattle, Washington, on February 14, 1969.

RECEIVED
FEB 17 1969
OFFICE OF
STATE HIGHWAY ENGINEER

9555

RECEIVED
OREGON STATE HIGHWAY DEPT.
BRIDGE DIVISION
AM JAN 16 1969 PM
7,8,9,10,11,12,1,2,3,4,5,6

OREGON STATE
HIGHWAY DEPARTMENT

HIGHWAY BUILDING • SALEM, OREGON • 97310 • Phone 364-2171

January 15, 1969

Mr. Joe D. Dwyer
Office of the Secretary
U.S. Department of the Interior
Pacific Northwest Region
P. O. Box 3621
Portland, Oregon 97208

bc: Forrest Cooper
R. L. Porter
Victor D. Wolfe
✓ Ivan Merchant (enc.)

Dear Sir:

In presenting the Department's application to the U. S. Coast Guard for a permit for construction of an I-205 bridge across the Columbia River, the Coast Guard advised us that it would be encumbent upon us to effectively remove or satisfy the objection made by your department. If we are correct, your statement was:

> "We approve this application subject to the following condition:
>
> That the Oregon State Game Commission lands affected by the project be replaced with substitute lands which are acceptable to the Game Commission..."

While we believe that the matter of exchange of lands between the Game Commission and the Port of Portland is not within our jurisdiction, we present for your consideration a statement from the Port of Portland and a statement presented by the Game Commission at the Federal Aviation Administration hearing on September 25, 1968.

Will you please advise if this does in effect answer the objection which you entered in the record at the hearing at which testimony was presented concerning the applicaton for the bridge construction permit.

NOTED
[illegible]

Very truly yours,

Forrest Cooper
State Highway Engineer

By ORIGINAL SIGNED
TOM EDWARDS

Tom Edwards

TE:ja

E. JACOBSEN
Secretary
ROBERT B. WILSON
Treasurer
LEW S. RUSSELL
HOWARD B. SOMERS
DONALD G. DRAKE
HAROLD S. HIRSCH
JOHN S. BRANDIS

GEORGE M. BALDWIN
General Manager

THE PORT OF PORTLAND

BOX 3529 PORTLAND, OREGON 97208 Telephone (503) 224-4260
Lindsay Building 710 S.W. 2nd Avenue

January 8, 1969

Oregon State Highway Department
State Highway Building
Salem, Oregon 97310

Attention: Mr. Tom Edwards

Gentlemen:

As discussed with Mr. Merchant of your office this date, we are continuing negotiations for property to be exchanged for the Game Commission lands on Lemon, McGuire, and Government islands as a part of our Portland International Airport expansion program. Attached is testimony given by Mr. George Hibbard, a member of the Oregon State Game Commission, at the public hearing held by the Federal Aviation Administration on September 25, 1968, confirming this fact.

As you know, we have been in discussions with the State Game Commission from the very beginning of our planning on the expansion program since Game Commission property is affected. Several alternate parcels have been under review, and during the past summer it was resolved by the Game Commission that one general area - a part of Sauvie Island Wildlife Management Area - would best serve its needs as a replacement for the islands.

Two Commissioners from the Game Commission and two from The Port of Portland form a committee to resolve this problem, and they have met on various occasions to discuss the alternate sites being considered in the exchange. The primary item to be resolved is the price to be paid the land owners for the alternate site being negotiated for. Also involved is the possible exchange of lands at another location for one of the suitable sites.

As you can see, the transaction is complicated; however, this office has made a firm commitment to the Oregon State Game Commission to exchange lands considered suitable by the Game Commission but cannot proceed with the actual purchase until after approval of the Portland International Airport expansion program by the Federal agencies. It is our recommendation that the U. S. Coast Guard be requested to approve your permit "subject to The Port of Portland's complying with the bona fide requirements of the Department of the Interior and other affected agencies or departments."

If there are any further questions regarding this matter, please feel free to call.

Sincerely yours,

THE PORT OF PORTLAND

AJ Heineman
A. J. HEINEMAN
Assistant General Manager

AJH:mh
Enclosure

RECEIVED
JAN 9 1969
OFFICE OF
STATE HIGHWAY ENGINEER

Tape #5 taken at
FAA Hearing 9/25/68

FOR THE PIA EXPANSION

OREGON STATE GAME COMMISSION (Called to BPA office by Mr. P. W. Schneider)

Mr. Chairman:

My name is George Hibbard. I am a member of the Oregon State Game Commission. I am appearing here on behalf of the Commission in response to the public notice dated August 15, 1968.

The land owned by the Oregon State Game Commission on Government Island is a unit of the Sauvies Island Wild Life Management Area and is serving a useful purpose in our Wild Life Management Program.

Progress has decreed that these lands are necessary for the proposed airport expansion and Interstate Highway I-205 location. Fortunately, however, there are suitable replacement areas of at least equal wild life values located in comparable relationship to the Sauvies Island base.

At the request of The Port of Portland some months ago, the Commission identified after careful consideration these suitable replacement areas that we would accept in exchange for Government Island.

An exchange has been agreed upon based on the Commission's best conservation judgment that would provide the Game Commission with an area of equal wild life value. Although this exchange has not been consummated to date, its completion is anticipated in the near future.

Thank you.

/cav

DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

Address reply to:
COMMANDER (o-4)
Thirteenth Coast Guard District
618 Second Ave.
Seattle, Wash. 98104

3271
2 January 1969
Serial 1359

7132

Mr. Tom Edwards
Assistant State Highway Engineer
Oregon State Highway Department
Highway Building
Salem, Oregon 97310

Dear Mr. Edwards:

Your letter of 26 December 1968 concerning your application for permit to construct a bridge across the Columbia River East of Portland/Vancouver has been received. I am going to hold the application without taking any action until the Portland Airport and associated river dredging has been resolved and permit issued (or denied) by the Corps of Engineers.

After the Airport decision is resolved, I will welcome a conference with you on how to handle the objections and whether additional public notice may be necessary. I will notify you as soon as I have any new information from the Corps of Engineers. However, the best information at this time is that possibly two months may pass before the decision is made.

Sincerely yours,

Victor Koll
VICTOR KOLL
Commander, U. S. Coast Guard
Chief, Aids to Navigation Branch
By direction of the Commander
Thirteenth Coast Guard District

NOTED
TOM EDWARDS

1-3-69

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JAN 16 1969
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JAN 3 1969
OFFICE OF
STATE HIGHWAY ENGINEER

B.M. File
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DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

Address reply to:
COMMANDER
Thirteenth Coast Guard District
618 Second Ave.
Seattle, Wash. 98104

2371
14 January 1969
Serial 49

Mr. Tom Edwards
Oregon State Highway Department
Salen, Oregon 97310

Dear Mr. Edwards:

I am enclosing herewith a drawing I received today from the Port of Portland showing the proposed expansion plan for the Portland International Airport. In making a review of the drawings you submitted for the I-205 crossing of the Columbia River with the Port of Portland drawing, I find the two are not in sufficient agreement for me to process your application as presented. The following alternatives are suggested so your drawings will correspond with the physical conditions of the river after the airport fill work has been completed.

1. The plan view - sheet 1 of 3 - must be revised to depict the changes to the river and to show the length of the bridge portion of your project. Your drawing shows the bridge has an S curve where the Port of Portland shows it straight. Each end of the bridge should have a geographical tie to a section corner or some other land subdivision as a grid coordinate.

2. Sheet 2 of 3 should show the overall length of the bridge from dry land to dry land. The overall length should appear. The cross section of the channel should show water depths. The plan view of this sheet shows an S curve for the bridge as noted also on sheet 1. The South Channel is not properly depicted as the Port of Portland drawing does not show a separate south channel at the bridge site. The edge of the fill line does not correspond with Port of Portland Plan. In revising this sheet, you may find it advisable to enlarge the scale and show only part of the bridge on each of 2 or more sheets.

3. Sheet 3 of 3 gives a good illustration of the main ship channel principal span in elevation view. The similar view of south channel is questioned as there is no south channel on the Port of Portland drawing. This sheet should be revised to show the clearance, both horizontal and vertical, for each span of the bridge from bank to bank. Use additional sheets if necessary. You might find it easier to show a typical span and then the dimensions of all other spans on right, left and center could be tabulated.

letter of 2/26/69

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[illegible]

The Coast Guard can only issue a permit for that portion of the bridge which is over navigable waters. The portion of your highway which will pass over the new land fill by the Port of Portland will not be covered by the final Coast Guard permit. The present south channel at the bridge site will be land fill as shown by Port of Portland and their permit, if issued, will cover that work. Should you desire to construct a work bridge prior to completion of the fill, a permit for said work bridge would be required. On the main river crossing there is no indication on your drawing of falsework. It is, therefore, assumed your contractor or yourself will make a separate application for this work prior to start of the bridge. No special permit is required for construction of cofferdams for the main pier footings provided navigation clearances between bridge piers are not unduly encroached upon.

Should you require any assistance in completing these changes, please feel free to contact Mr. J. E. Shields of my staff at any time. After return of the drawings and after the Corps of Engineers grants approval for the channel changes, I will re-advertise your proposed bridge for Route I-205. I find the drawings differ so far from the plan of the Port of Portland that I cannot suggest approval of the drawings as submitted. Therefore, I am returning your drawings, together with the Plan of the Port of Portland. It is requested that you return the Port of Portland Plan as soon as you can make a copy.

Sincerely yours,

Victor Koll

VICTOR KOLL
Commander, U. S. Coast Guard
Chief, Aids to Navigation Branch
By direction of the Commander
Thirteenth Coast Guard District

Encl. (1) Sheets 1,2 and 3 of your application drawings.
(2) Port of Portland proposed airport plan

RECEIVED
JAN 15 1969
OFFICE OF
STATE HIGHWAY ENGINEER

1979 Columbia R. Br. (N. Channel 890
Superstruc.) Sec. of E. Ptld. Fwy.
(Structure)
#3

9555

OREGON STATE
HIGHWAY DEPARTMENT

HIGHWAY BUILDING ∘ SALEM, OREGON ∘ 97310 ∘ Phone 364-2171

December 26, 1968

Commander Victor Koll
Chief, Aids to Navigation Branch
United States Coast Guard
Thirteenth Coast Guard District
618 Second Avenue
Seattle, Washington 98104

Dear Sir:

Thank you for your letter of November 25 concerning our application for a bridge crossing permit on the route of I-205 across the Columbia River. Since receipt of your letter, we have conferred with the Port of Portland and have studied the complaints which you received and forwarded to us on July 12.

Referring to the 12 letters of objection, the following comments relate to the areas in which the objections appeared to be oriented. These comments reflect our interpretation of each piece of correspondence and are as follows:

1. Bridge Alignment and Location. Objectors No. 1, 5, and 6 object to the alignment of the bridge with respect to the new south channel as proposed by the Port of Portland and/or to the location of the northerly terminus of the bridge. Alignment of the bridge is covered under 2 below, "Navigational Hazards". With respect to the north shore location of the bridge, this site was selected by the Washington State Highway Department, and the Oregon State Highway Department's responsibility in this regard is the determination as to whether the bridge can be constructed to conform with the airport approach criteria and still meet the Washington State Highway Department requirements. We believe adequate consideration was given to alternate locations by the Washington State Highway Department.

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OREGON STATE HIGHWAY DEPT.
BRIDGE DIVISION
AM DEC 27 1968 PM
7,8,9,10,11,12,1,2,3,4,5,6

2. Navigational Hazards (small boat channel). Objectors No. 1, 2, 5, and 6 based their protests on alleged inadequate clearances in the relocated south channel. The lateral clearance at right angles to the channel is the same between piers now as was previously proposed and approved. Vertical clearance has been increased in this area from some 48 feet to 69 feet above low water. Actually, during the major part of the year, currents are slow and vessels can safely use any of the spans giving unlimited clearance for small vessels.

3. Vertical Clearance. Objectors No. 4 and 7 refer specifically to main channel vertical clearance for future upriver navigational capabilities. Objector No. 11 expresses general concern for the future navigation capabilities of the river. The vertical clearance proposed in our application is the same as was originally proposed and approved. No evidence was presented at the public hearing to justify greater clearance. Facts were presented to show that all traffic which could be expected to use the channel would have adequate clearance.

4. Objection to Coast Guard Notice. Objectors No. 5 and 9 object to the notice itself, primarily because of the lack of approval of the airport expansion program. Since the Oregon State Highway Department approves of the airport expansion concept as proposed by the Port of Portland, the application for a bridge permit is justified and these objections are felt to be invalid.

5. This item includes objections to Expansion of the Airport; to The Proposed Dredge Fill in the River; to the Hydraulics Resulting from the Proposed Dredging; and to Conservation. These areas of protest by Objectors No. 2, 3, 5, 8, 10, 11, and 12 do not pertain to the I-205 Columbia River Bridge. These items are being considered by the U. S. Corps of Engineers and by the FAA, and comments by the Highway Department would be inappropriate.

It is believed that all objections relative to the proposed bridge itself have been previously voiced and properly considered. Those objections which do not apply to the bridge are outside the area of responsibility of the State Highway Department, and any response by the State

Highway Department to them would be improper. It is believed that evidence already received at the public hearings provides the justification for approval of our permit application.

All of the issues raised by the foregoing objectors were brought out in one or more of the following three public hearings:

1. I-205 bridge, May 25, 1967, by the Corps of Engineers.

2. The airport plan, August 1, 1968, by the Corps of Engineers.

3. The airport plan, September 25, 1968, by the Federal Aviation Administration.

Transcripts of these hearings are no doubt part of your files.

The present plan for the bridge is in accord with the proposed expansion of the Portland International Airport and should be considered by higher authority at the same time as the airport plan. Our application will provide for a decision on the basis of approval of the airport program.

In summary, it appears that the background and data are such that the application could be processed without further hearings.

Very truly yours,

Forrest Cooper
State Highway Engineer

By ORIGINAL SIGNED
TOM EDWARDS

Tom Edwards
Assistant State Highway Engineer

bc Forrest Cooper
R. L. Porter
*F. B. Klaboe
Victor D. Wolfe
Ivan Merchant
*F. D. Morgan
*A. E. Johnson
*Enc.

TE:ja

bc Mr. A. J. Heineman
Assistant General Manager
The Port of Portland
Box 3529
Portland, Oregon 97208

8915

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JAN 15 1969
FOR FILING

December 26, 1968

Mr. Robert F. Dow
Chief Engineer
The Port of Portland
Box 3529
Portland, Oregon 97208

7087

library

Re: Soils Investigations in the Vicinity of Portland International Airport

Dear Mr. Dow:

Receipt is acknowledged of your letter of December 13 with a copy of Dames & Moore Supplementary Soils Investigation for the proposed extension of the airport.

The Supplementary Soils Investigation does not cover the area of the proposed Columbia River Bridge. However, it does give the geology of the area and, in conjunction with the Preliminary Soils Investigation sent us previously, will give us a very good idea of the type of foundation material to be encountered in the bridge construction area.

We are very appreciative of receiving these reports.

Very truly yours,

Forrest Cooper
State Highway Engineer

By

Tom Edwards
Assistant State Highway Engineer

bc Forrest Cooper
R. L. Porter
Victor D. Wolfe
Ivan Merchant

IDM:jr ja

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DEC 19 1968

FOR FILING

Const
R/W
EPF

Col R Bar

-08-201

December 13, 1968

Mr. Tom Edwards
Assistant State Highway Engineer
Oregon State Highway Department
State Highway Building
Salem, Oregon 97310

REFERRED TO
Barber
By Asst. State Hwy. Engr.
Info

Dear Mr. Edwards:

Subject: Soils Investigations in the Vicinity of
Portland International Airport

Reference is made to my April 29, 1968, letter which transmitted a copy of the March 29, 1968, Dames & Moore Preliminary Soils Investigation for the proposed airport expansion and also referred to a Government Island soils report that had been sent earlier.

Enclosed we are sending a copy of the December 10, 1968, Dames & Moore Supplementary Soils Investigation for the proposed new north runway. The new borings are not in the vicinity of the proposed I 205 alignment, but may be of some interest to you.

Very truly yours,

THE PORT OF PORTLAND

Robert F. Dow
ROBERT F. DOW
Chief Engineer

RFD:bl
Enclosure

cc: Mr. F. B. Klaboe
Mr. Ivan Merchant
Mr. A. B. Johnson

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DEC 16 1968
OFFICE OF
STATE HIGHWAY ENGINEER

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OREGON STATE
HIGHWAY DEPARTMENT

HIGHWAY BUILDING • SALEM, OREGON • 97310 • Phone 364-2171

November 22, 1968

Commander Victor Koll
Chief, Aids to Navigation Branch
13th Coast Guard District
618 Second Avenue
Seattle, Washington 98104

Your File: 3271

Dear Commander Koll:

It has been some time since we have had contact with your office concerning our application for a crossing permit for a bridge on I-205 over the Columbia River easterly of the Portland International Airport, River Mile 112.7.

We realize there has been some delay brought about by the proposed revision of the Airport, but we believe the plan per se is now firm and are looking forward to doing some preliminary design and, particularly, foundation exploration in this area.

For these reasons, we are wondering if you can advise us as to any concrete developments concerning the issuance of a crossing permit.

Very truly yours,

Forrest Cooper
State Highway Engineer

By ORIGINAL SIGNED
TOM EDWARDS

Tom Edwards
Assistant State Highway Engineer

TE:ja

bc Forrest Cooper
R. L. Porter
Victor D. Wolfe
F. B. Klaboe
Ivan Merchant
F. D. Morgan
A. E. Johnson

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BRIDGE DIVISION
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**DEPARTMENT OF TRANSPORTATION**
**UNITED STATES COAST GUARD**

*Address reply to:*
COMMANDER (o-4)
Thirteenth Coast Guard District
618 Second Ave.
Seattle, Wash. 98104

3271
25 November 1968
Serial 1287

RECEIVED
OREGON STATE HIGHWAY DEPT.
BRIDGE DIVISION
AM NOV 29 1968 PM
7,8,9,10,11,12,1,2,3,4,5,6

Mr. Tom Edwards
Assistant State Highway Engineer
Oregon State Highway Department
Highway Building
Salem, Oregon 97310

Dear Mr. Edwards:

Your letter of 22 November 1968 concerning application for a bridge across the Columbia River, Route I-205, has been received. I have been informed that it may be another two to three months before the Corps of Engineers announces its action on the Port of Portland application.

Your last letter of 1 August 1968 stated you proposed to await the outcome of the Portland Airport issue. I had previously mailed you a list of objectors to the proposed bridge on 12 August 1968. You do not mention any effort to resolve the objections listed. It will be necessary for you to attempt to resolve the problems listed in these letters of objection prior to the Coast Guard taking any action.

If you want the Coast Guard to pursue your application further at this time, it will be necessary for you to make such a request and explain what occurred with each objection. Presently I cannot offer you any better schedule concerning the Portland Airport problem. Please let me know what further action you desire from the Coast Guard at this time.

Sincerely yours,

Victor Koll
VICTOR KOLL
Commander, U. S. Coast Guard
Chief, Aids to Navigation Branch
By direction of the Commander
Thirteenth Coast Guard District

Public hearing 68-10 re I-2

Mitchell
Pls discuss

copy - Mr Cooper
Mr Porter

NOTED
TOM EDWARDS

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NOV 27 1968
OFFICE OF
STATE HIGHWAY ENGINEER

5705

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NOV 20 1968

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2574

November 19, 1968

Mr. Robert F. Dow
Chief Engineer
The Port of Portland
Box 3529
Portland, Oregon 97208

Dear Mr. Dow:

Re: Columbia River-Sandy Boulevard Section
East Portland Freeway (I-205)
Multnomah County

Reference is made to your letter of October 29 requesting additional information on dredge material which you might be able to supply (at our expense) for the future Interstate 205 embankments.

We have been at a standstill as far as design is concerned for some little time because of new traffic studies, doubt as to where your airport is going to be, where the interchange for the airport and Marine Drive is to be and what design will be necessary at that point and at some of the critical points to the south.

Until these items have been cleared up, we will not be able to establish any exact schedule or quantity; however, in order to get a better estimate of quantity and a plan of placement, we will make a preliminary study of the job as it appears at the moment and will advise you further in the near future.

As soon as you and the County have agreed on the approximate location of the connecting road from the airport easterly to Marine Drive, we would appreciate this information so that a preliminary interchange design can be worked up at the intersection with Interstate 205.

I hope that our traffic studies will be completed in the near future so that our design can be completed and a reasonably firm estimate made of our additional embankment needs.

Please advise me if there appears to be any particular problem involved in supplying this additional yardage.

Very truly yours,

Forrest Cooper
State Highway Engineer

By

F. B. Klaboe
Assistant State Highway Engineer

cc: Forrest Cooper
R. L. Porter
Tom Edwards
D. J. Barbee
A. E. Johnson

ADO:jp srb

**COMMISSION**
DENNIS J. LINDSAY
President
LEE E. CALDWELL
Vice President
ERLING E. JACOBSEN
Secretary
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Treasurer
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JOHN S. BRANDIS

GEORGE M. BALDWIN
General Manager

BOX 3529 PORTLAND, OREGON 97208 Telephone (503) 224-4260
Lindsay Building 710 S.W. 2nd Avenue

October 29, 1968

Mr. F. B. Klaboe
Assistant State Highway Engineer
Oregon State Highway Department
State Highway Building
Salem, Oregon 97310

Dear Mr. Klaboe:

SUBJECT: Interstate 205

In your letter dated May 29, 1968, you asked about the possibilities of our providing (at your expense) two million cubic yards of dredged material for the construction of I-205.

We are now doing preliminary work that will lead to construction plans and specifications for the dredging, if our expansion plan is approved. Therefore, we would appreciate more details concerning the scheduling, quantity, location and quality of the fill material that you require, to see how it could fit into our program.

Very truly yours,

THE PORT OF PORTLAND

Robert F Dow
ROBERT F. DOW
Chief Engineer

Olson

Routing
Morgan
Decker
Bond
Barbee
Walker
Glenn
Swan

Pease
Morelock
Trout
Scott
Wills
Litchfield
Olson

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NOV 1 1968
~~CONSTRUCTION~~ Design
DIVISION

RECEIVED
OCT 31 1968
OFFICE OF
STATE HIGHWAY ENGINEER

*Major Continuing Projects:*
**AVIATION**—PORTLAND INTERNATIONAL AIRPORT, PORTLAND-HILLSBORO AIRPORT, PORTLAND-TROUTDALE AIRPORT, AND SWAN ISLAND HELIPORT
**LAND DEVELOPMENT**—SWAN ISLAND INDUSTRIAL PARK, RIVERGATE INDUSTRIAL DISTRICT, AND PORT CENTER
**MARINE**—PIPELINE DREDGE OREGON, STERNWHEEL STEAMER PORTLAND, AND SWAN ISLAND SHIP REPAIR YARD

8905

8

1968

FORM E-30X [illegible] SP*23500-734

## OREGON STATE HIGHWAY DEPARTMENT

INTER-DEPARTMENT CORRESPONDENCE

Portland, Oregon
September 26, 1968

To: Memo to the Files

SUBJECT: FAA Hearing
Port of Portland
Airport Expansion

On Wednesday, September 25, the FAA held a hearing in the Bonneville Building auditorium for the purpose of taking testimony for or against the proposed expansion of the Portland International Airport by the Port of Portland. The presiding officer was Mr. Robert Blanchard, Seattle Area Manager for FAA, who explained that the purpose of the hearing concerned the airport expansion and realignment of the runways and was to obtain additional information to assist the FAA to make a decision on the Port of Portland proposal. He stated that the FAA would make one of three decisions:

1. No objections,
2. No objections if certain conditions are met, or
3. That the proposal is objectionable.

Governor Tom McCall opened the hearing by stating the need for immediate expansion is critical and urged that the proposal be approved. Also testifying was Mrs. Julia Butler Hanson, Congresswoman from Washington, who urged that a scale model and comprehensive study of the hydraulics of the river be made before any changes to the channel are permitted. Mrs. Hanson also suggested that action on the airport proposal should be postponed pending the completion of a nationwide noise study.

Statements were read by Mr. Elwood Cobb, representing Senator Wayne Morse, who supported the proposal; Mr. Robert Shaffer, representing Senator Magnuson, who urged that all problems be resolved and thorough studies be made before approval of the expansion plan. A similar statement was read from Senator Henry Jackson of Washington. Senator Jackson raised the question of destroying the islands as game refuges and recreational facilities and the problem of dredging in the river with possible shoaling and increased erosion.

A letter from Congressman Wyatt was read which supported the Port of Portland proposal.

REFERRED TO
Porter
STATE HWY. ENGR
Info

NOTED
R. L. PORTER

Considerable other testimony was given which, for the most part, was a repetition of the testimony offered at the Corps of Engineers hearing recently. Most of the testimony was offered by residents from Washington, who had a responsive and applauding audience.

Original Signed by A. E. Johnson

A. E. Johnson
Metropolitan Engineer

AEJ:lk

cc: F. B. Elsbee
F. D. Morgan

RECEIVED
OCT 1 1968
OFFICE OF
STATE HIGHWAY ENGINEER

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RECEIVED
SEP 30 1968

FOR FILING

COMMISSIONERS
[illegible], CHAIRMAN
MEDFORD
KENNETH N. FRIDLEY, MEMBER
WASCO
DAVID B. SIMPSON, MEMBER
PORTLAND

STATE OF OREGON
STATE HIGHWAY DEPARTMENT
SALEM 97310

September 23, 1968

Mrs. Dorothy F. Woodward
3 South Court Street
Luray, Virginia 22835

Subj: Columbia River Bridge
East Portland Freeway
Multnomah County

NOTED
F. B. KLABOE

Dear Mrs. Woodward:

This is in answer to your letter of September 19 concerning plans for the proposed Columbia River Bridge on Interstate 205.

At present the Federal Aviation Agency is studying the effect of our proposed Columbia River Crossing on the safety of air navigation. Concurrently, the Army Corps of Engineers is studying the effect of the proposed Portland International Airport expansion on the surrounding area and on our proposal. Due to this uncertainty we do not have any plans prepared for the proposed Interstate 205 structure. Enclosed is a small sketch map, used at our public hearing, showing the general location of the river crossing and the remainder of the Interstate 205 route through Portland.

It is hoped this will be of some use to you.

Very truly yours,

F.D. Morgan
Construction Engineer

By D. J. Barbee
D.J. Barbee
Assistant Construction Engineer

Attach

DNS:jp
cc: F.B. Klaboe ✓

RECEIVED
SEP 24 1968
OFFICE OF
STATE HIGHWAY ENGINEER

September 19, 1968

Mr. F. D. Morgan, Construction Engineer
Oregon State Highway Commission
State Highway Bldg.
Salem, Oregon 97310

Dear Mr. Morgan:

It has come to my attention that a long-talked of bridge across the Columbia River in the vicinity of Goernment Island is possibly on the drawing boards now.

If possible, I would like to receive a map of the proposed highway and bridge, which I understand would skirt the edges of Portland, Oregon, to connect with the Pacific Highway in Washington.

Any information that my be available as to the date on which work will be begin, etc., would be of interest.

Your courtesy in this regard will be appreciated, indeed.

Sincerely yours,

Dorothy F Woodward

(Mrs.) Dorothy F. Woodward
3 South Court St.
Luray, Va. 22835

[illegible] effect of [illegible] (on [illegible]

Routing E/
Morgan
Docker
Bond
Barbee
Walker
Glenn
Swan
Pease
Hovorka
Trout
Scott
Wilk
Litchfield
/ Olson

RECEIVED
CONSTRUCTION
DIVISION

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RECE
AUG
FOR

COUNTY COMMISSIONERS
M. JAMES GLEASON, Chairman
L. W. AYLSWORTH
DAVID ECCLES
DAN MOSEE
MEL GORDON

**Multnomah County Oregon**
R. L. NORDLANDER, DIRECTOR, DEPARTMENT OF PUBLIC WORKS
MAIN OFFICE (503) 233-5861 ■ 2115 S. E. MORRISON STREET ■ PORTLAND, OREGON 97214

August 7, 1968

Oregon State Highway Department
Highway Building
Salem, Oregon 97310

ATTN: F. B. Klaboe
Asst. State Highway Engineer

re: N. E. MARINE DRIVE
(Vicinity of Portland
International Airport)

Dear Mr. Klaboe:

Regarding your inquiry of July 15, 1968, as to the status of alternate road patterns to accommodate the proposed development of Portland International Airport, we are currently working with the Port of Portland to determine the re-routing of this facility. We have reviewed the tentative proposals by the Port, made suggestions, and have requested that the Port submit the proposed re-routing for our approval.

We anticipate an early decision on the roadway system in this area and will advise you as soon as this decision has been made.

Very truly yours,

R L Nordlander
R. L. NORDLANDER
Director of Public Works

RLN:kw

copy to R. E. Simpson, BPR
8-15-68

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F. B. [illegible]

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AUG 8 1968
OFFICE OF
STATE HIGHWAY ENGINEER

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JUL 17 1968

Const
R/W
EP7
Col R Br

July 15, 1968

Mr. Paul C. Northrop
Roadmaster and Engineer
Multnomah County
2115 S. E. Morrison Street
Portland, Oregon 97214

Dear Mr. Northrop:

Re: Portland International Airport
Columbia River-Sandy Boulevard Section
East Portland Freeway (I-205)
Multnomah County

We have been asked by the Federal Aviation Agency (through our local Bureau of Public Roads' office) for comments and suggestions regarding routing and alternate routings for N. E. Marine Drive (FAS-647).

Since this is principally a matter between the Port of Portland and Multnomah County, we have made no studies of the alternate patterns for this arterial. I would appreciate what information you might have on any routes which have been considered and also the status of a final route if one has been selected.

Very truly yours,

Forrest Cooper
State Highway Engineer

By

F. B. Klaboe
Assistant State Highway Engineer

cc: R. E. Simpson, Bureau of Public Roads
Forrest Cooper
R. L. Porter
F. D. Morgan
A. E. Johnson

ADO:jp srb

8905

RECEIVED
JUL 17 1968
FOR FILING

assign 2383-FBK

68-47

July 16, 1968

District Engineer
Corps of Engineers
628 Pittock Block
Portland, Oregon 97205

2312
2342

Dear Sir:

Your File: NPPND-WM-P
1507- 27 (Columbia R.-Dredging)-166

Reference is made to the Public Notice 68-47(s), Notice of Public Hearing for Dredging and Filling Operations, Columbia River near Portland, Oregon, dated 2 July, 1968.

Please be advised that the work contemplated by the Port of Portland, as indicated by this notice, is in conformance with the tantative routing for Interstate 205 as agreed upon by the Port of Portland and the Highway Department.

We are most anxious that the Port's plans be finalized as soon as possible so that we may establish a definite location for the Interstate 205 crossing of the Columbia River and to tie down the routing south of the proposed bridge. We would appreciate anything that would expedite this.

If further information is desired, please advise.

Very truly yours,

Forrest Cooper
State Highway Engineer

By

F. B. Klaboe
Assistant State Highway Engineer

Barber to attend

cc: Forrest Cooper
R. L. Porter
Tom Edwards
Victor D. Wolfe
F. D. Morgan
A. E. Johnson - Enc.
George Baldwin, Port of Portland

ADO:jp srb

**DEPARTMENT OF THE ARMY**
**PORTLAND DISTRICT, CORPS OF ENGINEERS**
628 PITTOCK BLOCK
PORTLAND, OREGON 97205

RECEIVED
JUL 3 1968
OFFICE OF
STATE HIGHWAY ENGINEER

NPPND-WM-P
1507-27(Columbia R.-Dredging)-166

2 July 1968

PUBLIC NOTICE 68-47(S)
NOTICE OF PUBLIC HEARING
FOR
DREDGING AND FILLING OPERATIONS
COLUMBIA RIVER
NEAR
PORTLAND, OREGON

Pursuant to Public Notice 68-47 issued by this office 10 May 1968, the application of The Port of Portland for dredging and filling operations in the Columbia River near Portland, Oregon, in conjunction with the expansion of the existing Portland International Airport between approximate river miles 110 and 112 will be considered at a Public Hearing to be held at:

9:00 a.m. on 1 August 1968
in the Auditorium
Bonneville Power Administration Building
1002 Northeast Holladay Street
Portland, Oregon

All interested parties are invited to be present or to be represented at the above time and place, including, but not limited to, representatives of Federal, State, County and Municipal Agencies; also, commercial, industrial, civic, highway, water transportation and air transportation, fish and wildlife interests, and property owners concerned. All present will be given an opportunity to express their views. Parties making presentations are urged to state the reasons for their position of objecting to or favoring this proposal.

For accuracy of the record all important facts and arguments should be submitted in writing, in duplicate. Those with written statements will be given preference to be heard first. Written statements may be handed to the undersigned at the hearing or mailed to him beforehand at 628 Pittock Block, Portland, Oregon 97205. Oral statements will be heard as time permits.

The Port of Portland has proposed a revision of their original application for approval of plans for the dredging and filling operations in the Columbia River near Portland, Oregon. Generally, the revision includes a larger boat basin located in the present small craft channel south of Government Island to accommodate a larger recreational area. The south

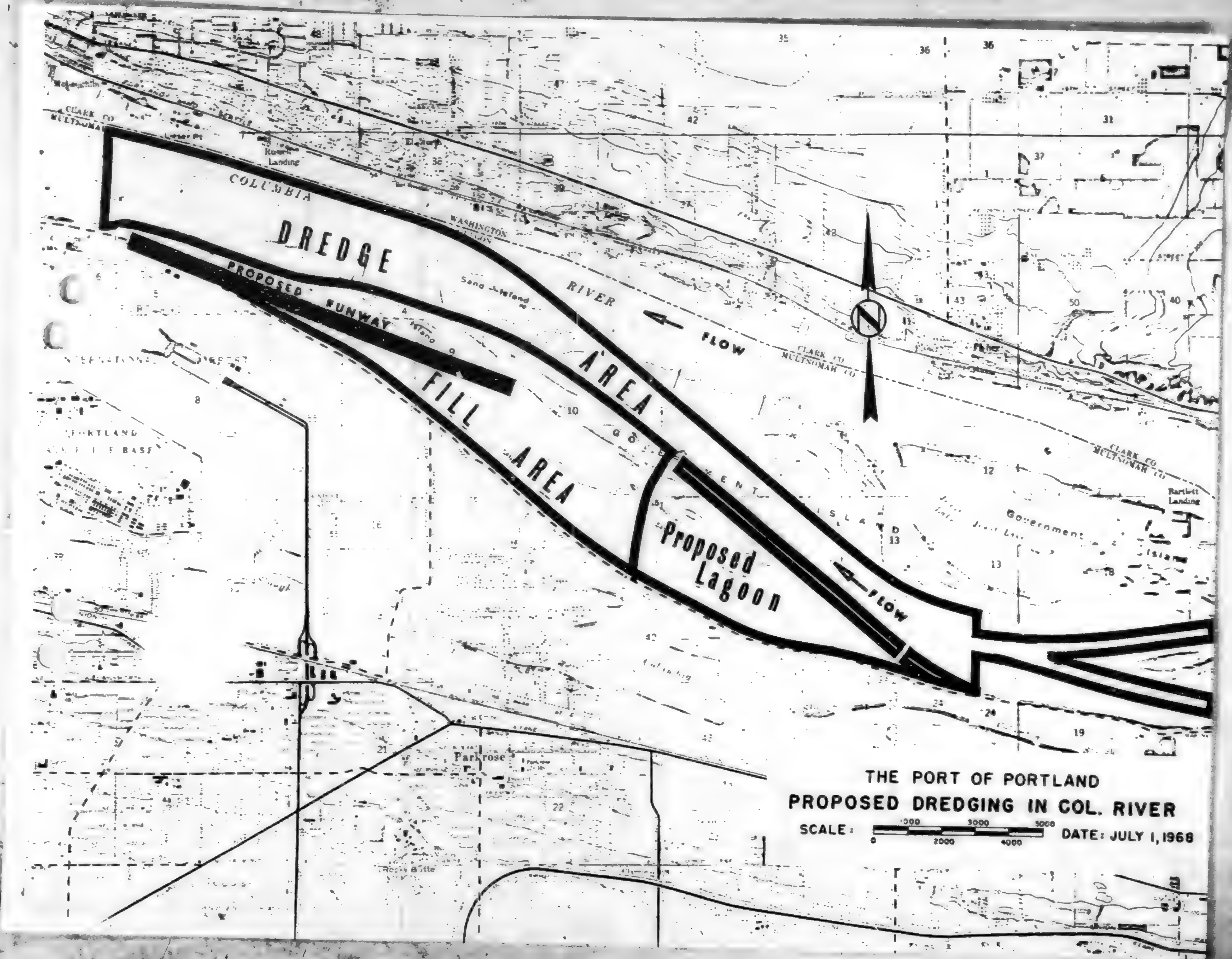
NOTED
7-8-68
W. H. TEBEAU

channel will cut diagonally across Government Island at the approximate location of one-quarter mile east of the original proposal as shown on Public Notice 68-47. Additional dredging accomplished in the small craft channel will increase the overall dredging to about 38 million cubic yards for placement in fill area. All information contained in Public Notice 68-47 remains approximately the same except for that stated above. A map showing the revised proposals is printed on the back of this sheet.

The letters received in response to Public Notice 68-47 were furnished to the Port of Portland for their review. They have replied by letter to the District Engineer dealing with the principal subjects of the response letters. Details of the revised application and a copy of the Port of Portland's reply to the comments made in the response letters may be seen in the offices of Adam Heineman, Port of Portland, Lindsay Building, 710 S.W. Second Avenue, Portland, Oregon 97208.

Interested parties, either favoring or objecting, are invited to submit in writing any comments they may have to the proposed work prior to the date set for the Public Hearing. If applicable to this revised application, comments submitted in response to Public Notice 68-47 need not be resubmitted. The Public Hearing will be concerned with the Port of Portland's revised permit application which basically is the same as the original proposal except for the changes noted above.

LTC, CE
for ROBERT L. BANGERT
Colonel, Corps of Engineers
District Engineer



THE PORT OF PORTLAND
PROPOSED DREDGING IN COL. RIVER
SCALE: 0 1000 2000 3000 4000 5000 DATE: JULY 1, 1968

DREDGE
AREA
PROPOSED RUNWAY
FILL
AREA
Proposed
Lagoon
COLUMBIA
RIVER
FLOW
FLOW
WASHINGTON
CLARK CO
MULTNOMAH CO
Sand Island
Government
Island
Bartlett Landing
Parkrose
PORTLAND
BASE
Rocky Butte
N

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JUL 18 1968
FOR FILE

8905

#3

| | 1990 Gravity Model | Interstate Cost Estimate Study |
|---|---|---|
| INTERSTATE Br. I5 | 102,700 ✓ | 89,500 ✓ |
| I 205 Columbia River Br. | 61,700 ✓ | 54,200 ✓ |
| Total River Crossing | 164,400 | 143,700 |

NOTED
TOM EDWARDS

8905

4

RECEIVED
JUL 18 1968
FOR FILING

SP*23857-734

OREGON STATE HIGHWAY DEPARTMENT
INTER-DEPARTMENT CORRESPONDENCE

Portland, Oregon
July 15, 1968

To: Memo to the Files

SUBJECT: Columbia River Crossing
East Portland Freeway
Prefix 626-1909

On July 12, 1968 Messrs. Versteeg, Benedict and the writer met with Messrs. Tom Gray and Foster Perry of the Washington Highway Department and Gordon Elliott of Cornell, Howland, Hayes and Merryfield, consultants for the project in Washington, relative to establishing horizontal control across the Columbia River for the East Portland Freeway.

A plan was presented to the Washington engineers for a control line from the freeway crossing at Marine Drive on the Oregon side to the center of Government Island; thence northwesterly to the easterly end of Sand Island; thence to a point on the southerly shoulder of the Lewis and Clark Highway in Washington directly above Biddle Lake, where a connection would be made to the horizontal control on the Washington side. An Auxiliary Point would be established on the Washington shore at approximately the point of the freeway crossing.

A check tie would also be made from triangulation station Rocky Butte to a control point in Washington at the intersection of the Lewis and Clark Highway and Ellsworth Road.

There was some discussion relative to a control point on the southerly shoulder of the Lewis and Clark Highway as a low observing tower may be necessary. Mr. Gray was of the opinion that such a tower would not be objectionable because the shoulder is adjacent to a ramp from a weighing station.

The State of Washington will determine the ownership of properties on the Washington side where it is necessary to enter on such property.

F. B. KLABOE
NOTED

Dale E. Sturmer
Dale E. Sturmer
Resident Locating Engineer

DES:lh ✓
cc: Versteeg
Benedict

7-18-68
Morgan

RECEIVED
JUL 17 1968
OFFICE OF
STATE HIGHWAY ENGINEER

8905

JUL 16 1968

July 15, 1968

Port of Portland
Post Office Box 3529
Portland, Oregon 97208

2373

Gentlemen:

Re: Portland International Airport, Columbia River-Sandy Boulevard Section, East Portland Freeway (I-205) Multnomah County

Enclosed is a copy of a June 21 letter from the Federal Aviation Agency to our local Bureau of Public Roads' office in which mention is made of the Approach Light System (AL[illegible] for the proposed runway.

Since the proposed I-205 route is within the 3,000 feet stated for the ALS, I would appreciate information on this System. Our plans indicate that the center of I-205 is approximately 2,820 feet from the runway as presently laid out, which would either put a light support in the median or require a light support structure spanning the freeway. Please supply data which would include size and probable type of the light supports, anticipated height of the lights on each side of the freeway, and information on the size of the light, shielding, area of visibility, maintenance provisions, et cetera.

Also mentioned in the FAA letter is disposition of Marine Drive. While this is principally between the Port of Portland and Multnomah County, we would be most interested in future plans for this important arterial route.

Very truly yours,

Forrest Cooper
State Highway Engineer

By

F. B. Klaboe
Assistant State Highway Engineer

bc: Forrest Cooper
R. L. Porter
Tom Edwards
(FBK 2375) Victor D. Wolfe
F. D. Morgan
A. E. Johnson - Enc.

ADO:jp srb

Enc.

cc: R. E. Simpson, Bureau of Public Roads

Form FH-121 (4-67)

UNITED STATES GOVERNMENT

*Memorandum*

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
BUREAU OF PUBLIC ROADS
477 Cottage St. NE. - Salem OR 97301

DATE: June 26, 1968

In reply refer to: 08-35.3/727

TO : Mr. Forrest Cooper, State Highway Engineer
Salem, Oregon

FROM : For R. E. Simpson, Division Engineer
Salem, Oregon

SUBJECT: Highway-Airport Clearances
I 205 - Portland International Airport

Routing
Walker
Trout
Scott
Wills
Litchfield
Olson

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CONSTRUCTION

The Federal Aviation Agency, in their reply to our comments on the proposed alteration of the Portland International Airport, indicates that adequate clearance will exist between the proposed runway approach surfaces and I-205.

They also indicate that the disposition of NE. Marine Drive (FAS-647) is still under study and they have solicited our comments as to possible alternates to be considered. While this appears to be principally a matter between the Port of Portland and Multnomah County we would appreciate your comments on this matter, especially with regard to the effect various alternates might have on adjacent routes and on I-205 in particular.

A new point brought up by FAA concerns the placement of the individual lights of the Approach Light System for the new runways. It would appear that finding suitable locations for these lights at 100-foot intervals along lines crossing the freeways could become a very troublesome matter, especially if left until late in the design stage. You will note in the attached copy of the FAA's June 4, 1968 letter they mention a couple of alternatives and suggest that contact be made with the Port of Portland to work out an acceptable system.

Enclosure
cy FAA's 6-4-68 ltr.

orig to Morgan
copy to Young
6-28-68

RECEIVED
JUN 27 1968
OFFICE OF
STATE HIGHWAY ENGINEER

BUY U.S. SAVINGS BONDS REGULARLY ON THE PAYROLL SAVINGS PLAN

June 21, 1968

SEA-600

Mr. R. E. Simpson, Division Engineer
Federal Highway Administration
Bureau of Public Roads
477 Cottage Street Northeast
Salem, Oregon 97301

Dear Mr. Simpson:

Thank you for the information included in your June 3, 1968, memorandum regarding the proposed alterations of the Portland International Airport. The dimensions with respect to clearances over FAI Route 205 agree with the planning information that has been given to us by the Port of Portland. It, therefore, appears that adequate clearances will prevail.

It is probable that some problems may arise with conflicts between the proposed FAI Route 205 and an Approach Light System (ALS) for the proposed new runway. The ALS requires a light support at each 100 foot station from the runway end out to 3,000 feet. We would assume that it would be possible to cross the highway with an overhead support if necessary or possibly to place a light support in the median. The stage of the planning does not permit us to make a more detailed analysis at this time. If you feel that such a crossing may be a significant problem, we will ask the Port of Portland to work with you or the Highway Department to develop a proposed solution now.

The disposition of the Northeast Marine Drive route is currently under study by the Port. The value of the route, both as an arterial and as access to the waterfront is recognized, however, it would appear at this time that it would not be possible to retain the route between the runway and the river. We would like to have your comments with regard to this, particularly with regard to what alternate routings, if any, would appear to be available.

Sincerely yours,

Hans J. Sperber
Chief, Airports Branch
Oregon and Washington

ARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

Address reply to:
COMMANDER (o-4)
Thirteenth Coast Guard District
618 Second Ave.
Seattle, Wash. 98104

3271
12 July 1968
Serial: 809

Mr. Tom Edwards, Ast State Highway Engineer
State of Oregon
State Highway Department
Salem, Oregon 97310

Dear Mr. Edwards:

Reference: Application for approval of location and plans of highway I-205 bridge, Columbia River

A public notice was issued by this office concerning your application for approval of location and plans of highway I-205 bridge over the Columbia River between Portland, Oregon, and Vancouver, Washington. Objections were received from several individuals and organizations as follows:

1 Mr. and Mrs. J. W. Kline
2 Paul C. Somers
3 North Bank Suburban Club, Vancouver, Washington
4 Pacific American Steamship Association
5 Carl A. Petterson, M.D.
6 The Vancouver Clinic, Hayes Peterson, M.D.
7 Port of The Dalles
8 Mr. and Mrs. Paul W. Ransom
9 G. Campbell Dowd, M.D.
10 U.S. Department of Interior (Joe W. Dwyer)
11 Hazel-Dell Lake Shore Community Committee
12 The Vancouver Clinic, John C. Brougher, M.D.

12

Several others have indicated by telephone that they will submit objections within the next few days.

The objection of the Pacific American Steamboat Association was answered by this office asking for more specific details to support the objection. A copy of our letter is attached.

All of the other objectors were answered acknowledging their letter or telegram. A typical answer to Dr. Hayes Peterson is attached. Any additional letters of objection will likewise be forwarded to you when and if received.

Normally the Coast Guard requests the bridge applicant to contact each objector and attempt to resolve the problem. In this instance you may desire to wait for the outcome of the Port of Portland application to Corps of Engineers in Portland covering dredging and fill for the airport before you proceed further.

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OREGON STATE HIGHWAY DEPT.
BRIDGE DIVISION
AM AUG 2 - 1968 PM
7,8,9,10,11,12,1,2,3,4,5,6

Mr. J. E. Shields of my staff is handling this application. Please feel free to contact him at any time. No other action will be taken on your application until such time as you desire to proceed.

Sincerely yours,

VICTOR KOLL
Commander, U.S. Coast Guard
Chief, Aids to Navigation Branch
By direction of the Commander,
Thirteenth Coast Guard District

Encl: (1) Telegram from Mr. and Mrs. J. W. Kline, 8 Jul 1968
(2) Telegram from Paul C. Somers, 9 Jul 1968
(3) Telegram from North Bank Suburban Club, 7 Jul 1968
(4) Pacific Am Steamship Assoc ltr, 20 Jun 1968, with CCGD13 ltr, 26 Jun 1968
(5) Ltr from Carl A. Petterson, M.D., 3 Jul 1968
(6) Vancouver Clinic ltr (Heyes Peterson, M.D.), 2 Jul 1968, with CCGD13 ltr, 8 Jul 1968
(7) Port of The Dalles ltr, 6 Jul 1968
(8) Ltr from Mr. and Mrs. Paul W. Ransom, 8 Jul 1968
(9) Ltr from G. Campbell Dowd, M.D., 8 Jul 1968
(10) Dept of the Interior (Joe D. Dwyer) ltr, 5 Jul 1968
(11) Hazel Dell-Lake Shore Community Committee ltr, 18 Jun 1968
(12) Vancouver Clinic ltr (John C. Brougher, M.D.), 7 Jul 1968

RECEIVED
OREGON STATE HIGHWAY DEPT.
BRIDGE DIVISION
AM AUG 2 - 1968 PM
7,8,9,10,11,12,1,2,3,4,5,6

RECEIVED
JUL 16 1968
OFFICE OF
STATE HIGHWAY ENGINEER

8905

FORM E-1[illegible]X 50M 4-62

RECEIVED
JUL 15 1968

COMMISSIONERS
GLENN E. JACKSON, CHAIRMAN
MEDFORD
KENNETH [illegible] FRIDLEY, MEMBER
WASCO
DAVID B. SIMPSON, MEMBER
PORTLAND

STATE OF OREGON
STATE HIGHWAY DEPARTMENT
SALEM 97310

July 10, 1968

Mr. Fred S. McKnight
Chief, Air Traffic Branch, SEA-500
Department of Transportation
FAA, Seattle Area Office
FAA Building, Boeing Field
Seattle, Washington 98108

Subj: Columbia River Bridge
East Portland Freeway (I-205)
Multnomah County

Dear Mr. McKnight:

Your Reference: SEA-OE-68-145

As requested by your letter of July 8, 1968, I am enclosing two copies each of a plan (scale 1"-400 feet) and a profile (vertical scale 1"-20 feet, horizontal scale 1"-200 feet) which covers the area opposite the existing and proposed runways of the Portland International Airport. This is in addition to data previously submitted with Form FAA 117 dated June 18, 1968.

There will be no superstructure above the deck elevations indicated, except a hand rail which will be approximately 3-1/2 feet high. Lighting designs have not been made, however, I have been assured that luminaires, if utilized, will not encroach on the approach surfaces.

If further data is desired please advise.

Very truly yours,

Forrest Cooper
State Highway Engineer

By

F. D. Morgan
Construction Engineer

Attach
ADO:jp
cc: F.B. Klaboe

DEPARTMENT OF TRANSPORTATION
**FEDERAL AVIATION ADMINISTRATION**

SEATTLE AREA OFFICE
FAA BUILDING, BOEING FIELD
SEATTLE, WASHINGTON 98108

July 8, 1968

In Reply
Refer To: SEA-OE-68-145

Routing
Morgan
Decker
Bond
Barbee
Walker
Clonn
Swan
Pease
Morelock
Trout
Scott
Wills
Litchfield
/ Olson

RECEIVED
JUL 9 1968
CONSTRUCTION
DIVISION

Mr. F. D. Morgan
Construction Engineer
Oregon State Highway Department
State Highway Building
Salem, Oregon 97310

Dear Mr. Morgan:

This will acknowledge receipt of Form FAA 117 Notice of Proposed Construction or Alteration dated June 18, 1968 wherein the Oregon State Highway Department is proposing the construction of a six-lane interstate freeway (I-205) and bridge over the Columbia River adjacent to the Portland International Airport, Portland, Oregon.

The information provided on the form and the sketch map attached to the form is not in sufficient detail to evaluate the proposed construction in accordance with the provisions of Part 77 of the Federal Aviation Regulations.

Accordingly, we request that you provide us with a profile of the construction showing the above mean sea level elevations at various points along the route, especially, at the highest point within the approach surfaces of both Portland Airport runways. We also desire the highest AMSL elevation where it crosses the main channel of the Columbia River. Data should include any superstructure and luminaires. Enclosed are several copies of the new revised Form FAA 117 for your future use.

Sincerely,

Harry A. Suffion

for FRED S. MCKNIGHT
Chief, Air Traffic Branch, SEA-500
Oregon and Washington

Enclosure

8905

RECEIVED
JUL 8 - 1968
FOR FILING

July 3, 1968

Mr. George M. Baldwin
General Manager
Port of Portland
Box 3529
Portland, Oregon 97208

fs

Dear Mr. Baldwin:

A short while ago you forwarded to us one copy of the "Report to the Port of Portland Commission on Commercial Aviation Development in the Portland Metropolitan Area". We have shared this one copy with the Bureau of Public Roads and now have it back in our possession.

The Bureau has requested that they be supplied with three copies of the report. We would also like a couple more copies for our use. If it is possible to accommodate these requests, please forward five copies to this office and I will see that they are properly distributed.

Very truly yours,

Forrest Cooper
State Highway Engineer

By

F. B. Klaboe
Assistant State Highway Engineer

FBK:srb

cc: Forrest Cooper
R. L. Porter

Form FH-121 (4-67)

UNITED STATES GOVERNMENT

*Memorandum*

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
BUREAU OF PUBLIC ROADS
477 Cottage St. NE. - Salem OR 97301

BU [illegible] 1

DATE: June 3, 1968

In reply refer to: 08-35.1/727

TO : Mr. Forrest Cooper, State Highway Engineer
Salem, Oregon
Attention: Mr. F. ~~B. Klaboe~~

FROM : R. E. Simpson, Division Engineer
Salem, Oregon

SUBJECT: Commercial Aviation Development: Portland

Enclosed as you requested is your copy of the Report to the Port of Portland Commission on Commercial Aviation Development in the Portland Metropolitan Area.

We appreciate very much having the opportunity to review this report. When the report is released we would appreciate receiving three copies.

Enclosure
Report

NOTED
F. B. KLABOE

B/up
1 month

RECEIVED
JUN 4 1968
OFFICE OF
STATE HIGHWAY ENGINEER

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# REPORT TO
# THE PORT OF PORTLAND COMMISSION
# ON
# COMMERCIAL AVIATION DEVELOPMENT
# IN THE
# PORTLAND METROPOLITAN AREA

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*Presented By*

*George M. Baldwin - General Manager*

*April 26, 1968*

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*Compiled By*

*E. R. Arnold - Manager, Airport Development*

*With the Cooperation of*

*The Port of Portland Engineering, Industrial*
*Development, Marine, Planning and Research Departments*

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# SUMMARY
# REPORT TO
# THE PORT OF PORTLAND COMMISSION
# ON
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# IN THE
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## INTRODUCTION

This summary report is a discussion of the processes by which The Port of Portland staff, in conjunction with others, has investigated the many facets of commercial aviation growth in the Portland area, arrived at basic conclusions regarding the development of commercial aviation facilities, and now recommends Port Commission action to implement the appropriate plans.

## CONCLUSIONS:

Based on its evaluation of the various studies prepared by the several consultants and on its own studies, the Port staff has concluded:

1. That the expansion of Portland International Airport to its maximum capacity at the present site is the most feasible method of providing the commercial aviation facilities that will be needed in this region for at least the next twenty-five or thirty years, taking into account the total costs at each site, the comparative dates by which facilities would be available for use, and the relative convenience of

each site to the airport users. (Costs comparison for first stage development to a 36-gate terminal is included in the Regional Aviation Study portion of the Appendix.)

2. That a requisite to achievement of maximum capacity, and to gain other advantages, is a reconfiguration of the airfield.

3. That adoption of the recommended plan for redevelopment and its implementation will provide the region with an airport with equal to or greater potential capacity than any existing airport in the United States today.

4. That although present and projected growth rates for air traffic seem almost fantastic, predictions made only ten years ago have proven to have been far too conservative, and present predictions may prove to be just as conservative. For this reason, and notwithstanding the enormous capacity of a redeveloped PIA, the staff concludes that a site ✓ for another large hub commercial airport should be selected in the Willamette Valley between Portland and Salem. It is further concluded that at least a major portion of the site should be acquired by either the Port or the State and held until the possible need for such a site is no longer evident. This should be done to prevent commercial, industrial or residential development in the area which would be costly to relocate. Part of this site would be developed as a general aviation airport for which there will soon be a need, but the bulk of the land should continue to be used for agriculture.

## RECOMMENDATIONS:

Based on the conclusions reached as described above, and in order to expedite implementation of the planning necessary to provide critically needed facilities, the staff recommends that:

1. The Commission designate in principle the expansion of Portland International Airport as the most feasible location for the regional airport for at least the next twenty-five or thirty years.

2. The Commission approve in principle a redevelopment of the airport based on a new airport configuration involving relocation and realignment of both primary runway systems to provide at least 5,000' of separation between the runways and an approximate 7 1/2° counter-clockwise rotation of both.

3. The Commission recognize the authority and responsibilities of federal agencies in an implementation of such decisions and also the interest of state and local governmental units, and therefore authorize the staff to take the following steps:

   A. To make application to the Federal Aviation Agency for its review and approval of preliminary plans.

   B. To make application to the Corps of Engineers for review and approval of proposed changes in the channel of the Columbia River.

   C. To make application to the proper authority for release of that portion of the military property required for the proposed development.

   D. To make application to the airlines for approval of preliminary plans and to discuss with them the means of financing.

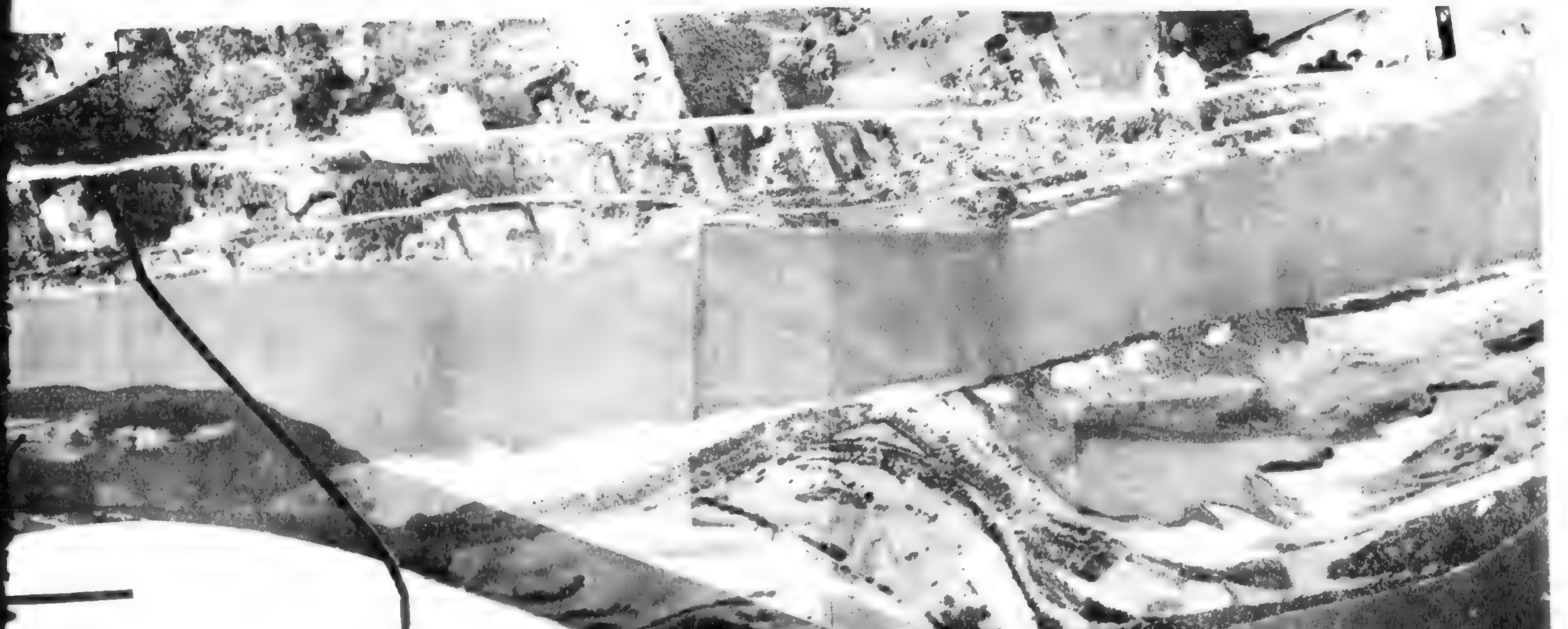
E. To proceed with the detailed planning and design for airport expansion as necessary to obtain the following listed information:

(1) Concepts of terminal development.

(2) Complete cost estimates for purposes of establishing a program budget and to arrive at a finance program.

(3) Preparation of an efficient and workable development schedule.

F. To authorize the staff to circulate copies of this report to state, county and city officials and invite comments from them.



THE PORT OF PORTLAND
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APRIL 26, 1968

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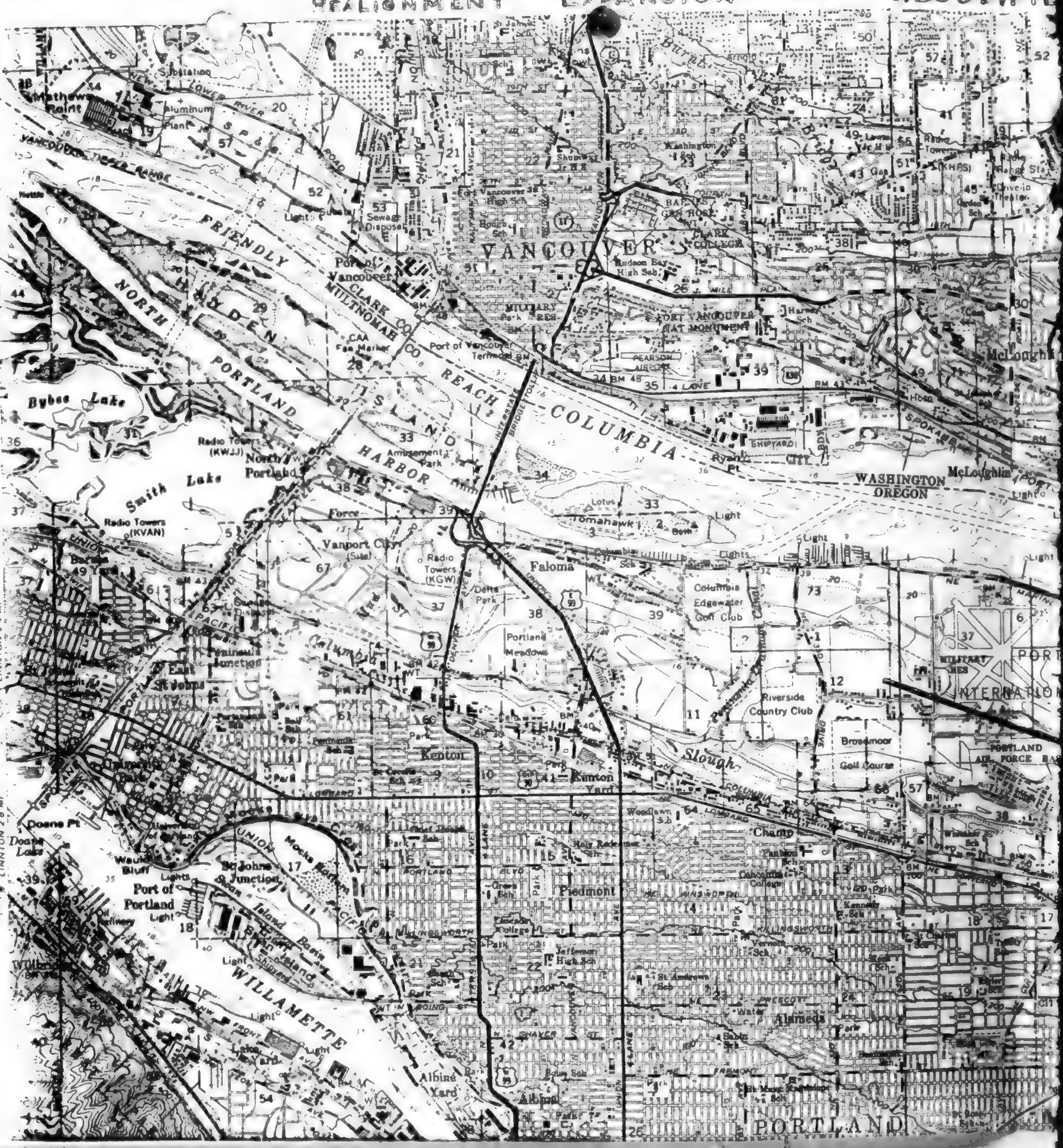

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Fort Vancouver High Sch
Fort Vancouver Nat Monument
Pearson Airport
Military Res
Hudson Bay High Sch
Washington Sch
Smith Point
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Substation
Sewage Disposal
Lower River Road
Vancouver Lower Range
Friendly
North Hayden Island
Clark Co
Multnomah Co
Port of Vancouver Terminal
Reach
Columbia
Shipyard
Ryan Pt
McLoughlin
Washington
Oregon
Bybee Lake
Smith Lake
Radio Tower (KWJJ)
Radio Towers (KVAN)
Radio Towers (KGW)
North Portland
Amusement Park
North Portland Harbor
Force
Vanport City (Site)
Delta Park
Portland Meadows
Faloma
Tomahawk
Lotus
Columbia Edgewater Golf Club
Riverside Country Club
Broadmoor Golf Course
Portland International
Portland Air Force Base
Military Res
Peninsula Junction
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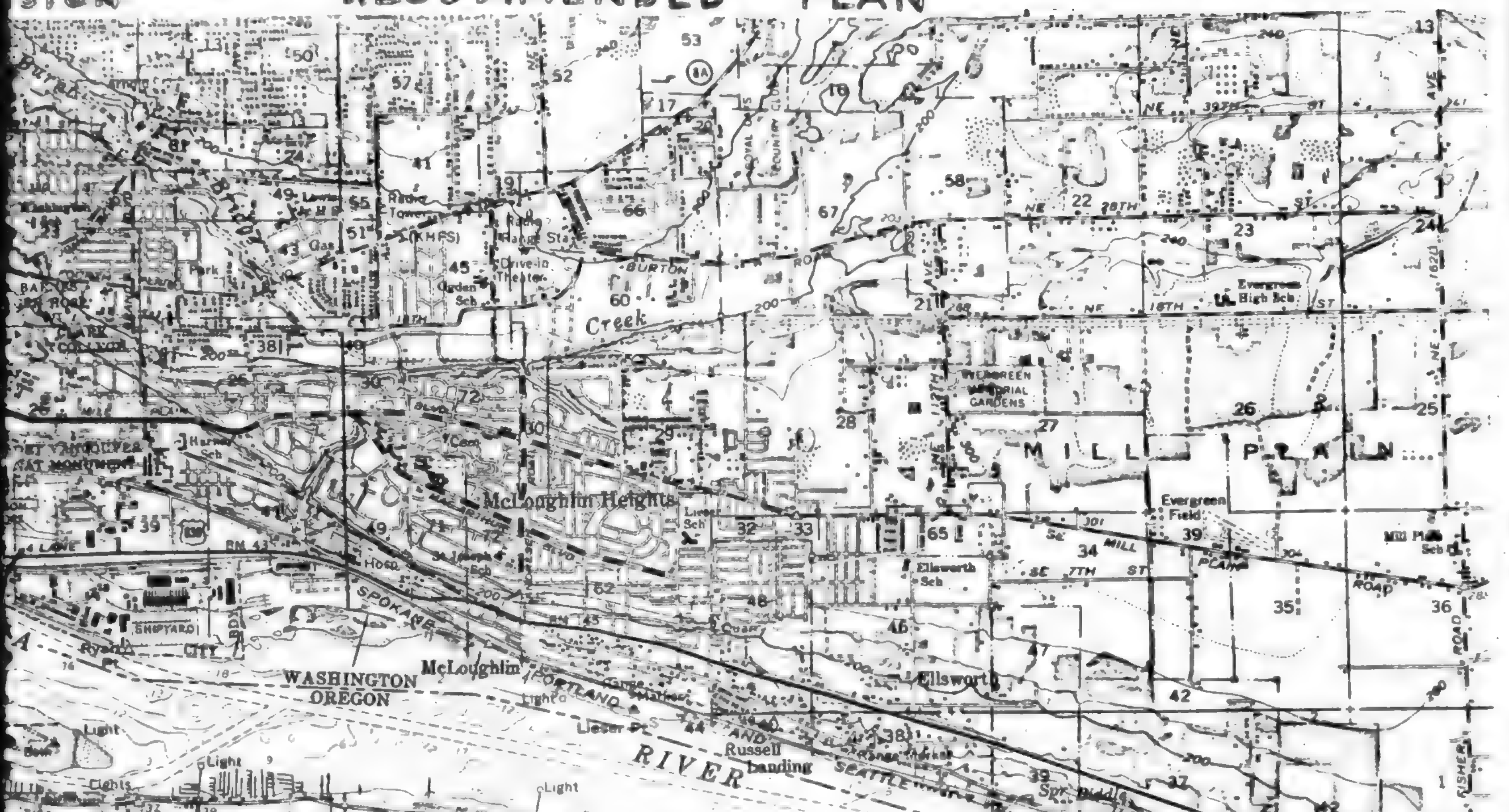
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Ellsworth
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Burton
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Drive-In Theater
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Radio Tower
SHIPYARD
SPOKANE PORTLAND AND SEATTLE
WASHINGTON
OREGON
McLoughlin
Lieser Pt.
Russell Landing
RIVER
Light
Columbia Edgewater Golf Club
Riverside Country Club
Broadmoor Golf Course
MILITARY RES
PORTLAND INTERNATIONAL AIRPORT
PORTLAND AIR FORCE BASE
Lower Point
Lemon Island
Sand Island
Government Island
CLARK CO
MULTNOMAH CO
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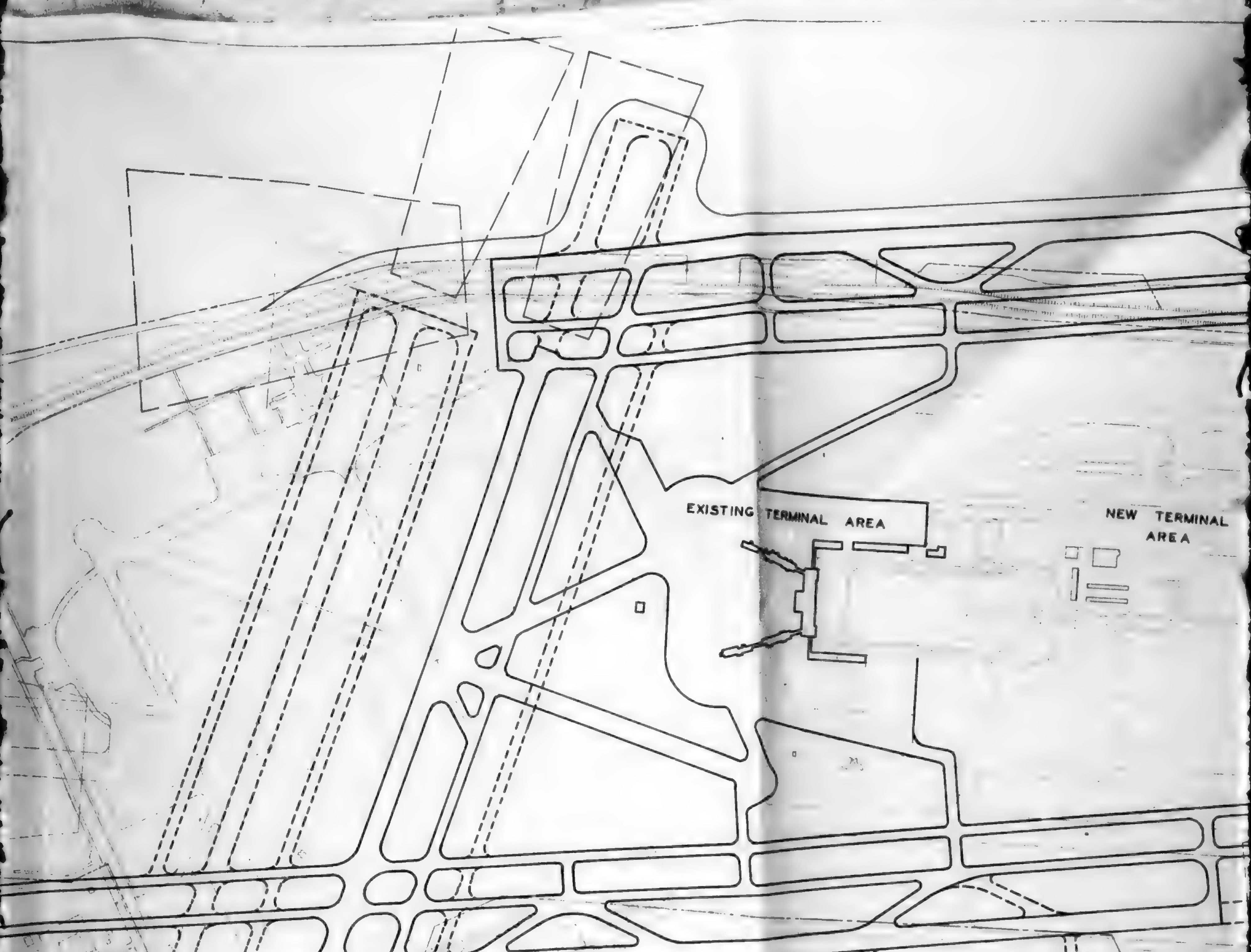
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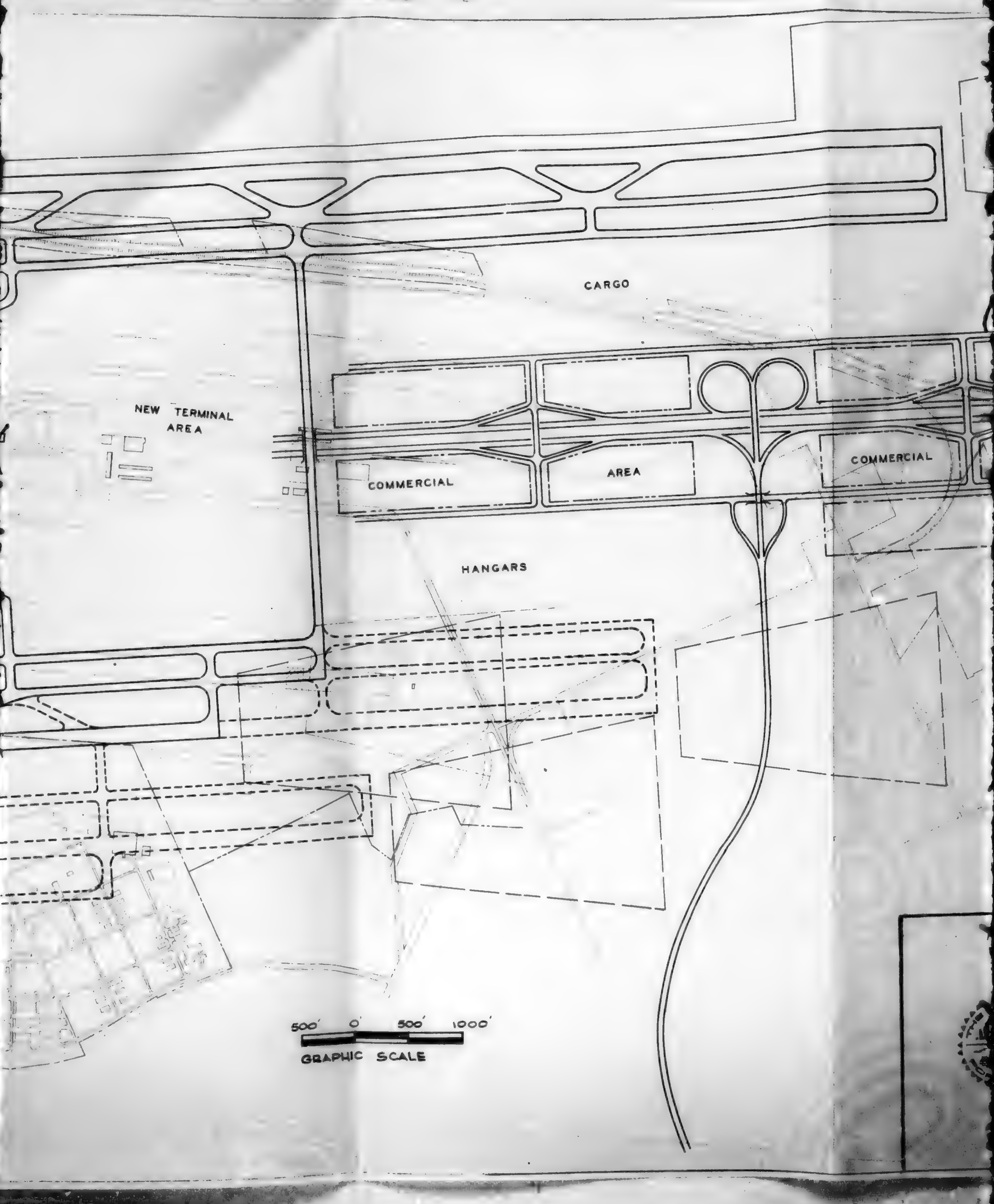
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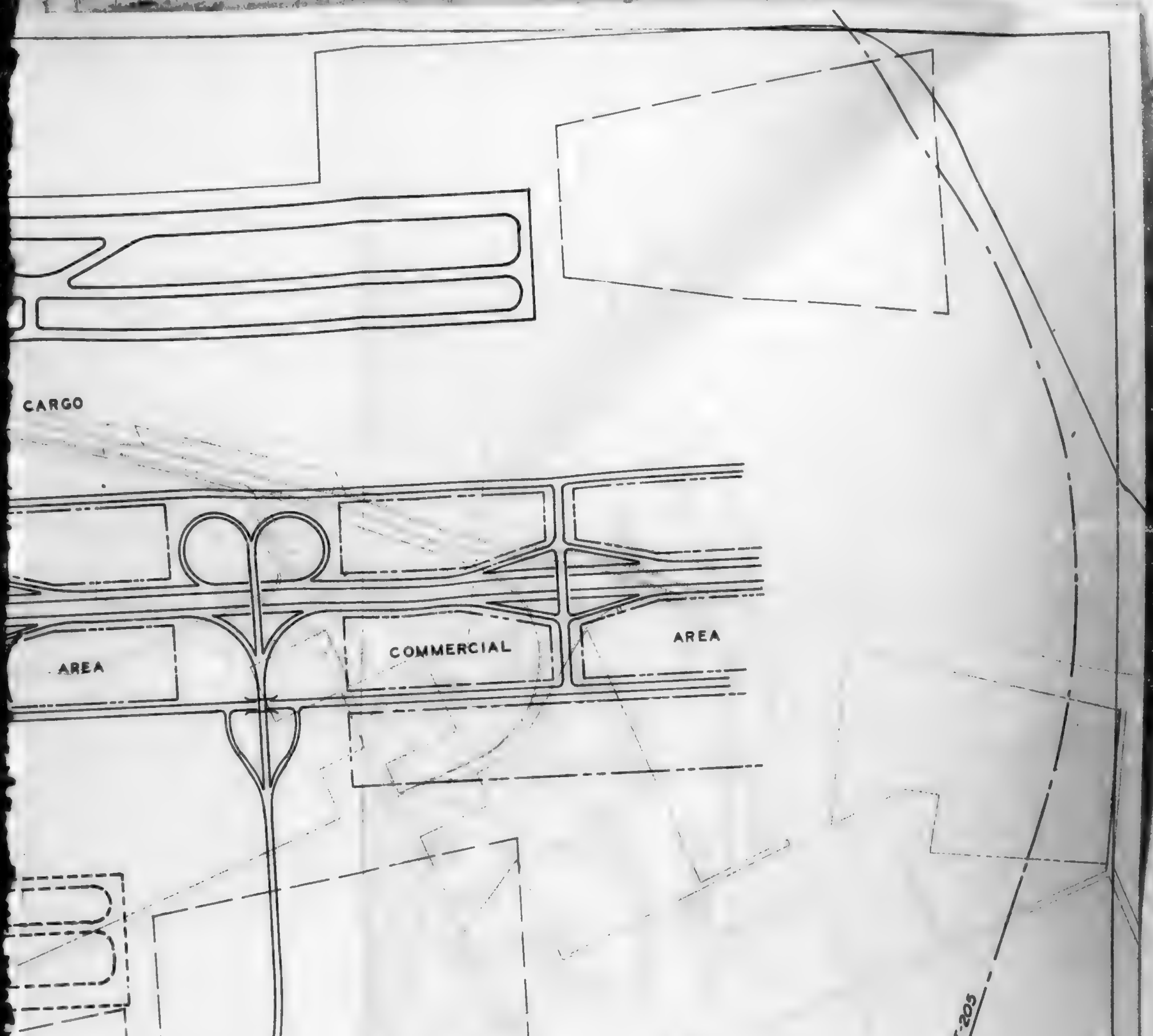
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BURNS & McDONNELL ENGINEERING CO.
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## REVIEW OF ENVIRONMENTAL CONSIDERATIONS:

During the past several weeks, members of the Port staff have addressed or met with many community groups, public officials, and communication media representatives to discuss airport planning. This has resulted in a general public awareness of the Port's studies and provided an opportunity for questions to be raised. Most of these questions involve noise, erosion of the north bank of the Columbia River, floods, destruction of recreational areas, adequacy of land available, and air pollution, all of which are related to possible expansion of the present Portland International Airport.

Due to the fact that to this time an alternate site has not been announced, similar questions have not arisen concerning other areas.

## NOISE AND BANK EROSION:

Obviously, the subjects of the questions raised are all important factors in a feasibility study and have necessitated a careful investigation and much consideration. To obtain the benefit of the best information available, the Port last January engaged the services of Bolt, Beranek and Newman to study the noise situation,and the services of Bauer Engineering, Inc. to study the proposed river channel modifications. Both of these firms have international reputations as authorities in their special fields. Copies of their summary reports are attached hereto and should eliminate the concerns heretofore voiced.

## RECREATION:

Planning for relocation of moorages and other marine facilities to be displaced is now under way and it is obvious that improved areas will be available. The removal of Sand Island (Tri Club Island) will mitigate the major cause of the present erosion of the north bank of the Columbia. Contrary to what apparently has been caused by a misunderstanding, there is no plan to eliminate Government Island as a recreational area. Only a small part is required for airport expansion.

## ADEQUACY OF LAND:

As is shown elsewhere in this report, the present airport site can be made adequate as to land area.

## AIR POLLUTION:

What must be regarded as an authoritative statement on air pollution was that contained in a recent speech by the Secretary for Transportation, Alan S. Boyd, that aircraft are causing only 1% of the air pollution in metropolitan areas. He also announced that the FAA will undertake a three year program to reduce jet air pollution further by "devising cleaner jet engines and cleaner fuels." It has also been reported that FAA will set standards to measure engine pollution and acceptable emission levels.

## THE PORT'S BROAD RESPONSIBILITY:

One of the most interesting questions raised regarding the Port's airport planning has come from Oregon State legislators. This question is "will the Port's decision as to whether or not to expand the present airport or to build a completely new airport be influenced by the fact that the Port believes its primary responsibility is to its own area which includes only Multnomah County?" Or, put another way, "if the Port were a direct state agency would its decision be the same?"

The answer to these questions is that The Port of Portland does recognize responsibilities to the state and region beyond its own political boundaries. This is particularly true of its aviation activities. The Portland International Airport serves as the major hub for air travel and air freight forwarding for all of the state of Oregon and a large segment of the state of Washington. A major portion of its financing has come from federal aid and from revenues from operations, including payments from the airlines for the use of facilities.

## EFFICIENCY OF PIA'S LOCATION:

The Port recognizes that the economic health of the Port area is dependent on the economic health of the region it serves and that this in turn is largely dependent on the adequacy of the total transportation system of which aviation is a vital part. Consequently, in evaluating the present airport location and possible alternate sites, careful consideration has been given to the time and cost factors to the airport users in traveling or transporting their freight to and from the possible sites and/or in changing to and from other modes of transportation. From this standpoint the present site is far superior to any other possible site, now or in the foreseeable future. As far as passengers are concerned, this is clearly proven by the results of the Origin and Destination Study, which are summarized in an attached report. This is further illustrated as far as air cargo is concerned by a map inspection of the location of present and developing industrial areas.

It should be noted that the forecasts of population increases in the Willamette Valley would not reduce the superiority of the present location.

## NEEDS OF OTHER REGIONS:

The Port staff also recognizes the growth in the Eugene-Springfield area and anticipates improved air service including eventual nonstop flights to major Pacific Coast cities from that area if adequate facilities are provided. A movement of Portland International Airport to a site in the Willamette Valley would virtually eliminate that development. Furthermore, such a move would be to the detriment of such other Oregon cities as Hood River, The Dalles and Astoria, and such Washington cities as Vancouver, Longview, Kelso and Camas-Washougal which do not have the same opportunities as Eugene-Springfield.

## VALUE OF AN ALTERNATE SITE:

The Port has also taken into account the value as agricultural land of the area that would be required for a major airport in the Willamette Valley. While the Port staff feels that land in the Valley should be selected and designated now as the possible site for a future airport if the need should ever arise, it believes that the land should be kept in agricultural use as long as possible.

SALEM'S NEEDS:

The volume of air traffic through PIA that originates or ends in Salem (approximately 3 1/2% of the total traffic) is recognized as is the advantage to Salem of relocating PIA in the Willamette Valley. However, with the completion of the I-205 Freeway, the travel time from Salem to PIA will be even less than from some existing metropolitan airports to the downtown areas they serve. Nonetheless, the Port staff believes that traffic from Salem, if not now then in the near future, may warrant direct public land transportation between Salem and PIA particularly during peak flight hours and stands ready to cooperate with Salem representatives in studying the situation.

# SUMMARY
# REPORT TO
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## REVIEW OF AIRPORT DEVELOPMENT

The existing terminal complex was completed and placed in service in 1958. It was planned and designed in conformity with the best available information of the time. Annual traffic forecasts of the late 1950's projected 500,000 enplaned passengers at PIA in 1965 and 750,000 in 1975. During the first four or five years of operation, the actual growth very closely matched predicted traffic. During 1963, the entire industry, including PIA, experienced a greatly accelerated rate of growth, resulting largely from the acceptance of jet aircraft by the traveling public, and lower developmental fares made possible by the efficiencies of the jets.

By 1966 it became obvious that the accelerated growth rates were not merely short duration fluctuation, but were in fact the beginning of a trend. In late 1966 the Port Commission authorized a contract with the firm of Burns & McDonnell to review the existing airport master plan and to prepare an overall airport development program.

The first report from the consultants indicated capacities which greatly exceeded existing traffic, but which pointed up inherent limitations of PIA resulting primarily from the narrow, 3,100 foot separation of the primary runways. Existing airport capacities were estimated at 45 to 50 gate positions; a runway capacity of 300,000 annual operations; 5,000 to 6,000 auto parking positions, and 5,000,000 to 6,000,000 total enplaned passengers. The ATA-United Air Lines forecast which was presented to the Port shortly thereafter indicated that passenger traffic capacities would not be reached until well after 1980. That report predated the inauguration of Portland service by three additional carriers as well as the commencement of several additional CAB route investigations, and the actual growth rates experienced since the time of that forecast were higher than were predicted in the report.

In an attempt to reconcile the various passenger projections the staff plotted the forecasts of Boeing Aircraft Corporation, the ATA, the FAA, and Landrum & Brown, airport traffic consultants. The resultant mean curve was adopted as a basis for planning after review by our airport consultants and the ATA. The curve closely followed the experience of passenger growth at PIA, and indicated that PIA will reach its capacities in the early 1980's. A constraint to be reached prior to 1980 will be the limited ability to accommodate the existing "stretched" and upcoming family of "jumbo" jets.

Forecasts of air freight growth are nebulous, varying from 800% to 1800% by 1975. Even under the most conservative forecasts, it is abundantly clear that substantially more space is required at the airport for cargo facilities than is now available. Under these conditions, the ability to meet the needs for commercial aviation facilities at PIA in its present configuration would exist for only about 15 years. At that time it will be necessary to either expand the airport as is presently being proposed, or construct new facilities at a new site. Normal financing for construction of facilities is over a minimum period of 20 years, and 30 years for land. It would be imprudent to make huge additional expenditures for facilities which would have to be abandoned long before their respective values have been amortized.

Because of these factors, the consultants' recommendations have consistently been to provide sufficient airport capacity to ensure that the airport will remain operable at least through the anticipated bond periods. In order to accomplish this, the runways must be separated by at least 5,000' to allow simultaneous instrument operations, thereby providing maximum runway capacity. Such separation of primary runways will provide sufficient space to allow dual taxiway systems, terminal aprons to allow unrestricted aircraft maneuvering around the terminal, and a satisfactory net width of terminal building space to provide the necessary number of loading gates as well as an adequate automobile parking area. In addition, there will then be sufficient depth to allow increased widths of access road rights-of-way; service roads; commercial areas; and a more than adequate amount of airside development space for such items as air freight and airline maintenance facilities.

Capacity of such an airport is estimated at more than 500,000 annual aircraft operations; 12 to 16 million annual enplaned passengers; space for 72 to 90 gate positions and an access road system capable of handling some 6,500 peak-hour automobiles. Such a layout will provide approximately 8,000 automobile parking positions at ground level in the terminal area.

These requirements led to the ultimate investigation of four basic concepts for providing necessary airport facilities. These concepts are reviewed as follows:

A. Relocation of Runway 10R/28L to the South

Of prime importance in this concept was the acquisition of land occupied by the U. S. Air Force. Discussion with the military at that time indicated their need to continue operations at PIA, and resolution of this situation would require the Port to construct new facilities at an acceptable location and to relocate the military activities to that new site. The total cost was deemed to be prohibitive. Even if funds had been available, there would not have been sufficient time to relocate the military to a new site and to build critically needed commercial aviation facilities.

B. Relocation of Runway 10L/28R to the North

The next area of investigation involved the relocation of Runway 10L/28R 2,000' to the north. Preliminary investigation indicated a requirement for the south channel of the Columbia River past Government Island to accommodate water flows which occur during annual freshets. This solution was not pursued further at that time.

C. Relocation of the Airport to a New Site

Upon determination that both the northerly and southerly expansion plans of PIA were apparently infeasible, investigation was undertaken of the feasibility of a complete relocation of all commercial aviation activities to a new site. When this was proposed to the airlines, they agreed in principle and encouraged the Port to purchase land for a new site to insure its availability if the decision is made to move to the new site. The airlines were unwilling, however, to establish definite criteria or a timetable for the move to the new site, their primary concern being that maximum utilization be made of PIA and that the existing and proposed interim investment at PIA be completely amortized prior to the development of a new commercial airport.

The Port-CRAG Regional Aviation Study was initiated concurrently, with primary emphasis upon the determination of the best site for the commercial aviation airport. It quickly became apparent that the existing PIA, if it could be expanded, was by every criteria the best site. Because of the problems that would attend the expansion of PIA, it was decided to also determine the best alternate site and to make a detailed comparison between PIA and the selected alternate. Upon investigation it was determined this alternate site would be in the northern end of the Willamette Valley west of the I-5 freeway and would center somewhere near the city of St. Paul.

Port consultants advised that construction of terminal facilities at PIA without commensurate airfield expansion would be unwise since traffic conditions would exceed the capability of PIA to accommodate the growth before the new airport could be completed unless development of the new site was begun in the near future. It was also pointed out that during the interim period many opportunities for development of the economy of the area relative to aviation could be lost by the inability to provide space for major aviation facilities at the time such space is needed.

## D. Realignment of Primary Runways and Expansion to the North and South

Staff review of previous concepts of expansion resulted in the recommended plan whereby northerly expansion would be accomplished by a deflection of the south channel of the Columbia River into a new channel through Government Island and the use of the material removed from the cut for fill for airport expansion. Investigation of this proposal revealed that certain modifications, including a rotation of both runways 7 1/2° in a counterclockwise direction and the movement of the north runway approximately 2,000' to the west would result in many advantages and improvements. As set forth in the appendage, "Special Studies," it is assumed that the Federal Government will relinquish its rights to a substantial portion of the present military leased property, and that this property can, in the immediate future, be used for airport expansion. This plan is recommended to the Commission for adoption.

# APPENDIX

# SPECIAL STUDIES

(a) Columbia River Channel Studies

The firm of Bauer Engineering has performed complete hydraulic studies of the proposed river channel alterations. The attached letter report dated April 19, 1968, summarizes the findings of this investigation.

(b) Hydraulic Fill

Some 30-35 million cubic yards of hydraulic fill will be placed during the proposed expansion. Primary source of the fill material will be the new channel cut diagonally across the downstream end of Government Island and the deepened portion of the main channel.

The engineering firm of Dames & Moore conducted a preliminary soils investigation which consisted of 35 borings in the borrow areas of Government Island and the main channel and in the fill area of the south channel. Indications are that the excavation material is of generally excellent quality for fill purposes. An area near the south shore of the south channel is overlain by soft material, indicating probable localized settlement. Overall, however, the general foundation conditions are excellent, and it is felt that by placing a reasonable amount of surcharge material on the soft area, an excellent runway facility can be constructed.

It is anticipated that three separate dredging contracts will be utilized to accomplish the basic fill over a period of approx. 20 months beginning February 1, 1969.

### (c) Noise

Every major airport has experienced problems resulting from the noise generated by the operation of jet aircraft at the airport. PIA has been reasonably free of serious problems in this area, and the proposed runway directional changes will result in an improvement in most areas of the existing conditions by making maximum use of the open water areas of the Columbia River. Realignment of the primary runways will reduce noise levels in Vancouver and on the south side of the river in Parkrose and East Multnomah County from a range of 95-100 PNdb's to a range of approximately 90-95 PNdb's. Noise levels on the north shore opposite the airport will remain below 90 PNdb's. It is felt that if the airport is to maintain compatibility with its surrounding environs that it is necessary to make this improvement by utilization of the over-water approach areas.

### (d) Military Leased Areas

Discussions with the military authorities indicate that a release of necessary acreage of the military may be accomplished, with a stipulation of the release being the continued occupancy and operation of the Oregon Air National Guard, Air Sea Rescue Reserve unit, certain ground reserve units, and the aviation contingent of the Oregon National Guard. This would mean that the military would release approximately 300 of 400 acres with most of the National Guard facilities remaining intact. The recommended plan provides for the continued use of a portion of the Air Base. The terms and conditions under which the military would relinquish their rights to the leased property have not as yet been fully established, and discussions are still under way. It is anticipated that the military will expect the Port to bear the expense of demolition necessary for construction of the new south runway, and a portion of the costs of relocating or replacing the facilities necessary for the mission of the Air Guard units.

(e) Land Use

The Port of Portland has retained the firm of Quinton Engineering for a land use study in the vicinity of PIA in order to formulate a plan for development of the areas contiguous with the airport. The specific functions of this study will be, (1) to determine the best sites for relocation of the existing moorages which will be displaced as a result of the airport expansion program, (2) suggest uses of land owned by the Port in the area surrounding the airport, and (3) provide a recommended realignment route for Marine Drive which must be relocated south of the airport early in the expansion program.

08-241

BAUER ENGINEERING, INC.
CONSULTING ENGINEERS-ENGINEERING HYDRAULICS
20 NORTH WACKER DRIVE
CHICAGO, ILLINOIS 60606

TELEPHONE
FRANKLIN 2-6696

CABLE ADDRESS
"BAUERENG CHICAGO"

April 19, 1968

| | Action | Info |
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| Gen. Mgr. | | X |
| Asst. Gen. Mgr. | | X |
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SUMMARY LETTER

Mr. George M. Baldwin
General Manager
The Port of Portland
P. O. Box 3529
Portland, Oregon 97208

Subject: Airport expansion;
hydraulic aspects

Dear Mr. Baldwin:

This letter is a summary of our studies made for the Port of Portland regarding the hydraulic aspects of the proposed expansion of the airport. We have concluded that the proposed relocation of a portion of the Columbia River south of Government Island is a feasible and sound way of achieving the additional space required.

## The Present Channels

The present channels in the reach of the river involved in this study are shown in Exhibit 1. The main or north channel lies between Government Island and the Washington shore; the south or minor channel lies between Government Island and the Oregon shore. Exhibit 1 also shows the locations of the cross sections for which bottom soundings were available.

The hydraulic aspects of this reach were studied with the aid of the following information:

1. Scale maps showing channel configurations, shore topography and bottom soundings for each of several years covering the period 1917 to 1967.

2. Aerial photographs showing present channel configurations and shoreline development.

3. Flow measurements made with current meter by the Batelle Memorial Institute for the purpose of determining the division of flow between the north and south channels under low-flow conditions.

4. Flow profiles for major historical floods during the period 1876 to 1965.

5. Records of past historical flood peak flows and forecasts of future peak flood flows after Canadian storage comes into operation.

6. Field inspection of conditions and materials comprising the Washington, the Oregon, and various island shore lines.

7. Envelopes of historical maximum and minimum flows by time of year.

8. Reports on subsurface borings made to explore types and depths of materials to be excavated.

The friction coefficients for the main channel and for the overbank flow at higher stages were determined from the knowledge of historical discharges and stages .

Using the standard step method and the Meyer-Peter equation for sediment transport, an electronic computer program was developed to calculate section by section the following flow characteristics:

1. Water-surface elevation

2. Average velocity in the section

3. Sediment transportation capacity of the section.

These characteristics were computed using two types of mathematical models, one based upon the assumption that cross flows over the islands would equalize water stages in the south and north channels, and another which assumed that these channels were effectively divided and that different stages could exist in the two channels at the same station. Both models gave the same results as far as overall hydraulic capacity and total transport of sediment were concerned.

However, the second model in which the separate channels were assumed to be effectively divided by the islands was used for most of the subsequent analyses because it permitted the study of the differences in these three characteristics in the two channels at the same station.

## The Proposed Channels

Two possible arrangements of channels involving filling in of a portion of the present south channel were studied as shown in Exhibits 2 and 3. Each of these two arrangements was calculated for the same discharges that were used to analyze the present channels. The design of the south channel was first adjusted to achieve stable conditions; then, the amount of main or north channel excavation was adjusted to achieve flow characteristics which were equal or superior to the corresponding characteristics of the present channel. By trying one after another of possible excavation plans, the depths and widths of channel excavation were adjusted to achieve the following goals:

1. The same division of flow between north and south channels as presently exists at all possible stages and discharges.
2. More uniform sediment transportation capacity so as to reduce present tendencies to scour in some places and to fill in other places.
3. The same flood-passing ability as presently exists.

## Conclusions

The results of our studies are summarized in the following conclusions:

1. Either of the two proposed channel configurations (Exhibits 2 and 3) achieves the desired goals.
2. Scour problems which presently exist along parts of the Washington shore would be mitigated by the proposed new channels. This is particularly true in the vicinity of Sand Island.

3. Sediment transport capacity of the proposed channels would tend to be more uniform than it is in the present channel. This means that both scour and deposition would be diminished.

4. Flood-passing ability would be equal to or slightly greater than that of the present channels.

5. Scour protection along the Oregon shore in areas of channel curvature can be designed after selection of the desired plan (Alternative 1 or 2).

6. Scour protection along the Washington shore will not be required as a result of the proposed channels.

7. Method of closure of the south channel during construction would be determined after selection of the desired plan (Alternative 1 or 2).

8. Hydraulic model tests would not add to the understanding of the comparative performances of the present and the two alternative proposed channels.

9. In Alternative 1 there are a few locations where the average velocity for a given flood would be higher than the average velocity at the same location for the same flood under present conditions; however, in these locations the sediment transport capacity would still be less than it is under present conditions so that increased erosion would not result.

10. Alternative 2 would perform in much the same manner as Alternative 1, the major difference being in the reach downstream from the confluence of the south and north channels where both the average velocity and sediment transport capacity would be somewhat reduced as compared to Alternative 1. Alternative 2 would have in this reach essentially the same velocities as does the present channel, with significantly reduced sediment transport and erosion tendencies as compared to the present channel.

We find the proposed relocation of the south channel of the Columbia River at this location to be a sound and practical way to achieve the additional space which expansion of the airport would require. Either of the two proposed channel designs would result in more stable channels.

After one of the alternative plans has been selected, final design studies could be made covering details such as local scour protection at points of curvature on the Oregon shore, method of closure during construction, and cleaning of floating debris from the proposed lagoon. Preliminary studies of this lagoon indicate that pollution problems related to biochemical oxygen demand, coliform count, and related invisible measures of pollution would not be a problem. However, some further study should be given to the matter of floating debris, for which one type of solution is indicated on the drawings accompanying this report.

It has been a pleasure working with you on this project. We would be happy to discuss this report with you, your staff, or any other interested persons at your request. Thank you for the opportunity to study such an interesting proposal for which so much underlying data was available for analysis.

Sincerely,

W. J. Bauer

W. J. Bauer
President

WJB:fb

Att: Exhibits 1, 2 and 3.

# AIR PASSENGER LANDSIDE
# ORIGIN & DESTINATION SURVEY

As part of its contribution to the Port-CRAG Regional Aviation Study, the Port has conducted and partially analyzed the results of a survey of air passengers at PIA to determine the origins and destinations of their land trips to and from the airport.

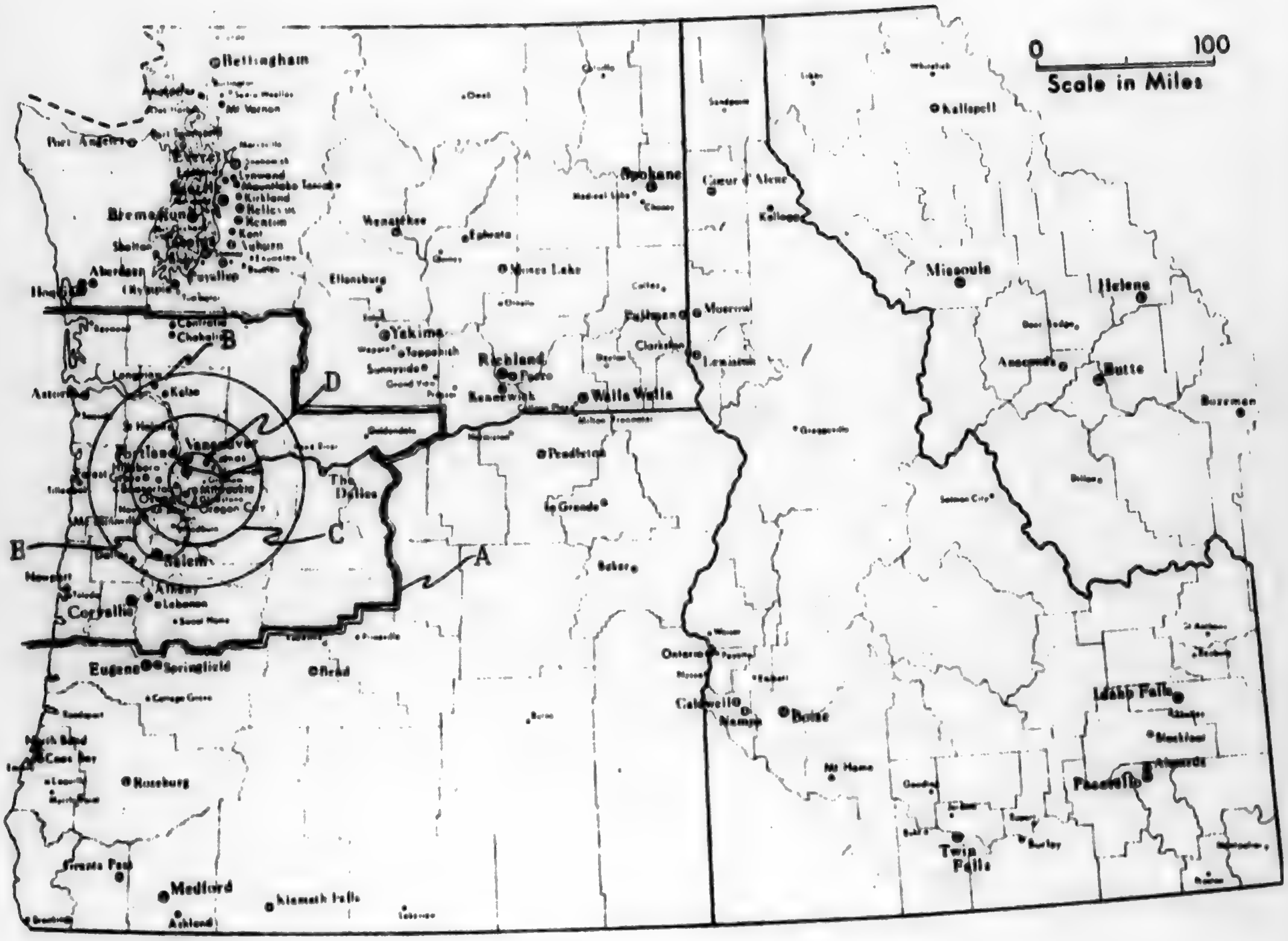
Survey cards were distributed to all enplaning and deplaning passengers over a seven day period from 6:30 a.m. to 12:00 midnight. More than 20% of the passengers responded, giving us a sample size of more than 6,000. We anticipate that the final sample will number more than 8,000 with response from 25% of the passengers.

The information on the cards has been numerically coded and processed by an IBM 360-30 computer. The questions asked were: residence, origin or destination of land trip to or from the airport, mode of travel, and purpose.

From these few questions, a great deal of information can be obtained. Time has limited the amount of analysis presented in this report; but what is offered is considered highly reliable because of the statistical reliability of a 20% sample.

Following are three exhibits which present the first broad-brush results of the survey. They demonstrate the heavy advantage PIA enjoys over the St. Paul site when the efficiency of the airport as a component of the transportation system is being considered.

## PORTLAND'S AIR TRAVEL MARKET AREA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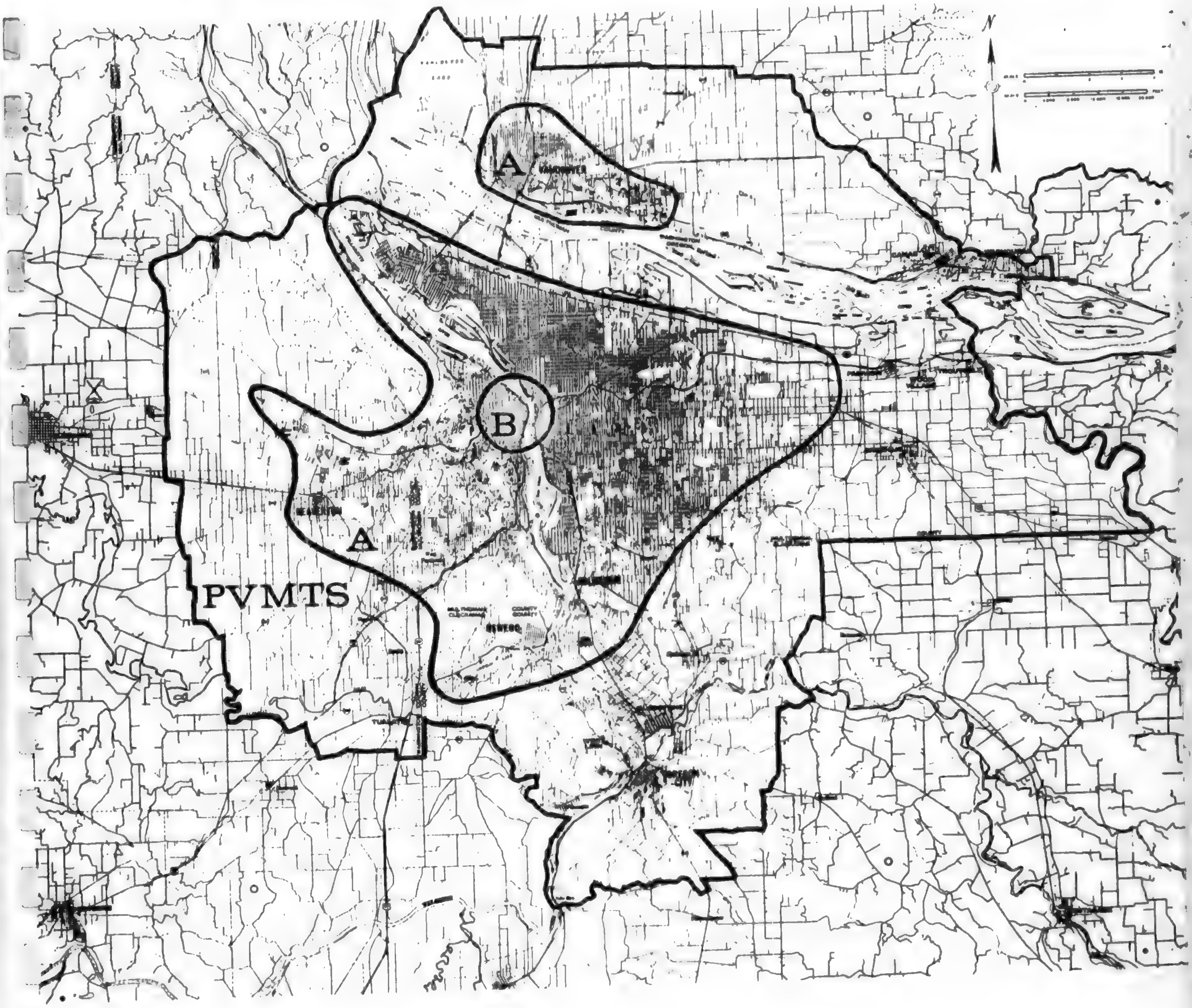
Oregon City
Salem
Albany
Lebanon
Corvallis
Newport
Eugene
Springfield
Bend
Roseburg
Coos Bay
Grants Pass
Medford
Ashland
Klamath Falls
Wenatchee
Ephrata
Moses Lake
Ellensburg
Yakima
Toppenish
Sunnyside
Richland
Pasco
Kennewick
Walla Walla
Pendleton
La Grande
Baker
Spokane
Pullman
Moscow
Clarkston
Lewiston
Coeur d'Alene
Kellogg
Kalispell
Missoula
Helena
Anaconda
Butte
Bozeman
Ontario
Caldwell
Nampa
Boise
Twin Falls
Burley
Pocatello
Idaho Falls

The following refers to the percentage of total origins and destinations of passenger land trips to or from PIA within the specified zones:

Zone A includes 95%
Zone B includes 88%
Zone C includes 82%
Zone D includes 78%
Zone E includes 6%

Zone D, containing 78%, approximates the study area of the Portland-Vancouver Metropolitan Transportation Study (PVMTS). Zone E is an area of comparable size to the PVMTS area; but is is positioned over the proposed St. Paul site. By comparing the two areas, it can be seen that the PVMTS area containing 78% of all origins and destinations is generally more convenient than the St. Paul area (containing 6% of all origins and destinations).

TRIPS TO AND FROM PIA ARE CONCENTRATED IN THE METROPOLITAN AREA



Above is presented the PVMTS base map. Within the PVMTS area, 78% of all passenger land trips to or from PIA begin or end.

Zone A includes 50-60% of all origins or destinations of passenger land trips to or from PIA.

Zone B, centered on the central business district, contains 28% of all origins and destinations. In other words, more than 1/4 of all people who travel to or from PIA by land begin or end their trip in or near the central business district.

## THE COST OF TRAVEL TO AND FROM ALTERNATE AIRPORT SITES

In addition to analyzing the spatial display of passenger trip origins and destinations, we have developed a quantatative measure of the relative convenience of the two airport sites: PIA and St. Paul.

Briefly, a dollar cost was attached to travel -- 10¢ a mile for distance and $5.00 per hour for time. These are generally accepted although the specific number is of no great concern because we are interested in the difference between alternatives.

The travel time and distance were computed from numerous geographical points to both sites and then multiplied by the appropriate value. These costs per trip were then applied to the number of annual trips. The result is the cost to the users of the airport for transportation to and from the airport.

| | |
|---|---|
| Cost of travel to and from St. Paul/year | $12,200,000 |
| Cost of travel to and from PIA/year | $ 7,400,000 |
| Savings to airport users because of PIA's greater convenience: | $ 4,800,000 |

Note: This figure is conservative in its construction and is not the total picture -- the cost of hauling freight to and from the airport is not included.

Note: All trips are assumed to be by private car -- the areas covered contain 95% of all origins and destinations -- figures subject to further refinement.

BOLT BERANEK AND NEWMAN INC
CONSULTING · DEVELOPMENT · RESEARCH

Technical Memorandum
Job 163623

# SUMMARY OF BBN STUDY OF JET TRANSPORT TAKEOFF AND LANDING NOISE LEVELS AT THE PORTLAND INTERNATIONAL AIRPORT

April 1968

Submitted to:

Mr. George D. Hext
Manager, Aviation Department
Port of Portland
Portland, Oregon 97208

## TECHNICAL MEMORANDUM

To: Mr. George D. Hext
Manager, Aviation Department
Port of Portland
Portland, Oregon 97208

Subject: Summary of BBN Study of Jet Transport Takeoff and Landing Noise Levels at the Portland International Airport

Date: April 1968

## I. INTRODUCTION

The rapid growth of jet transport aircraft operations within the last decade has caused concern about aircraft noise in many communities. Of particular concern to both airport and surrounding communities are the changes in noise exposure which are likely to result from changes in the airport runway or flight path configurations since such changes are often, to a large degree, within the control of the airport and communities. To aid the Port of Portland in selecting new runway configurations at the Portland International Airport, Bolt Beranek and Newman Inc. (BBN) has undertaken an acoustical engineering study providing comparisons of noise levels resulting from typical transport operations at the airport for various runway configurations.

This memo presents a summary of major portions of our technical report* in which we have presented a detailed comparison of aircraft noise levels for operations from the existing runways and a proposed new runway configuration. The new runway configuration chosen for the detailed noise study is one that had been selected by the Port after a review of a number of runway arrangements. During our engineering study, we have supplied preliminary noise information to the Port of Portland to aid the Port's study of various runway configurations.

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* BBN Report 1622, "Comparison of Takeoff and Landing Noise Levels for Existing and Proposed Runways at Portland International Airport", submitted to Mr. George D. Hext, Manager, Aviation Department, Port of Portland, Portland, Oregon, 97208, April 1968.

## II. SCOPE OF NOISE STUDY

Our study included field measurements of aircraft noise, taken at seven positions in the vicinity of Portland International Airport on 6 February 1968. During the measurements, flyover noise was measured at either one or two positions simultaneously during 37 military and civil jet aircraft takeoffs. Noise during five aircraft landings was recorded, and sets of simultaneous measurements were made at sideline positions during two aircraft takeoffs.

Our engineering analysis was based on these field measurements, noise and aircraft performance data we had acquired during previous noise measurements at other airports, and on technical information provided in various FAA and NASA reports.

## III. PERCEIVED NOISE LEVEL DESCRIPTIONS

In our studies, we have described aircraft noise in terms of the perceived noise level, expressed in units of perceived noise decibels (PNdB). The perceived noise level is a measure that is now widely used throughout this country and abroad for describing aircraft noises and other complex vehicle sounds. Its measurement and calculation are described in both national and international standards.

The perceived noise level scale has been established by comparison of physical measurements of the noise with people's judgment of the relative noisiness or annoyance of the sounds. In determining the perceived noise levels, sound pressure levels in different frequency bands are weighted in a manner corresponding to the relative sensitivity of the human ear to the different frequency components. Thus, high-pitched noises are given a greater weighting than low-pitched noises in determining the perceived noise level rating.

In interpreting perceived noise levels, one may note that a change of 10 PNdB corresponds to a subjective judgment of the halving or doubling of the noisiness of the sound. In other words, a sound judged to be twice as noisy as another sound would have a perceived noise level rating approximately 10 dB greater than the first sound. A sound 20 PNdB greater than the first sound would generally be rated as four times as noisy as the first sound. On the other hand, a difference of 1 or 2 PNdB between sounds although detectable if heard within a short time interval, would not be judged as a very significant difference by most observers.

Of major concern in our study was the noise produced by jet aircraft during takeoff and landing operations at the Portland International Airport. Such flyover noises may be characterized as sound signals that increase in level over a period of seconds to a maximum value and then decrease and eventually merge into the fluctuating background noise. Such transient noises occur frequently in urban areas. Typical examples, other than aircraft noise, are the noise signals produced by the drive-bys of automobiles, motorcycles or trucks.

The maximum noise levels produced by such transient noises may be very much greater than the steady-state noise levels. However, these high levels usually exist for only a few seconds per occurrence, thus people may tolerate and accept transient noises having maximum levels that are considerably greater than the steady-state noise levels.

To aid in interpreting perceived noise level measurements, Figs. 1, 2 and 3 present some comparisons of perceived noise levels for different types of vehicle operations and for some common urban environments. In these figures, perceived noise levels in PNdB are plotted along a vertical scale.

Figure 1 compares the perceived noise levels for several different types of present-day civil aircraft. The uppermost band shows typical levels for large turbojet and turbofan transport aircraft (such as the Boeing 707 and Douglas DC-8 aircraft). The middle band represents noise levels for two-engine piston and turboprop transport aircraft (typical examples are the Fairchild F-27 and the Convair 340). The lower band shows levels for the smaller two-engine piston business aircraft. In this figure (as in Fig. 2), the noise levels are plotted as a function of the distance from the observer to the aircraft.

Figure 2 shows, similarly, the perceived noise levels as a function of distance from several types of vehicles -- a diesel freight train, a truck or motorcycle and a range of noise levels typical of modern day automobiles. The uppermost edge of the shaded band represents levels for automobile speeds of 50 to 60 mph; the lower edge, levels for speeds of 15 to 25 mph.

Figure 3 shows the range of outdoor background noise levels experienced in many communities. Noise levels range downward, from "downtown" commercial areas with heavy traffic to the nighttime levels experienced in a quiet suburban neighborhood. It should be noted that even in the absence of vehicles or aircraft, the background noise level ranges shown in Fig. 3 would often be exceeded momentarily by noise from other activities such as a dog barking, children shouting, or a door slamming.

As Fig. 1 indicates, the noise level produced by an aircraft will decrease quite rapidly as distance from the aircraft is increased. And, for a given ground position, the minimum distance to the aircraft will be dependent upon the aircraft performance characteristics and its flight track over the ground. To take these factors into account in predicting noise levels heard on the ground, we have chosen to depict the noise levels by means of perceived noise level contours, which show the maximum noise level expected on the ground during an aircraft flyover.

Experience in measuring aircraft noise in a number of locations has shown that the noise levels measured at a given ground position may vary considerably from flyover to flyover. These variations may arise from differences in aircraft performance, engine noise characteristics, operating gross weight, weather conditions and pilot techniques. These variables make the description of aircraft noise in precise terms relatively difficult. They also indicate that aircraft noise descriptions should be based on a number of measurements, without sole reliance on measurements of a single aircraft flyover.

Thus, in developing contours, we have utilized information from a number of observations and have drawn the contours to depict the average or mean levels one might expect for a number of operations. Therefore, one would expect field measurements to yield levels that would fall above and below the contour predictions.

## IV. PERCEIVED NOISE LEVEL CONTOURS

Two sets of noise contours are presented in our report. One set represents the noise levels resulting from takeoff and landing operations of a three-engine Boeing 727 turbofan transport aircraft. This aircraft accounts for a large portion of scheduled operations from Portland International Airport for flights of less than 1000 miles range. Other medium- and short-range aircraft such as the Boeing 720B four-engine transport and the smaller two-engine DC-9 aircraft produce lower noise levels than those produced by the Boeing 727. Hence, the 727 noise contours provide a conservative estimate of noise levels accounting for a very large proportion of current jet operations.

To describe the noise levels produced by the relatively infrequent operations of the heavier and larger jet transport aircraft, we selected noise contours for the large four-engine turbofan aircraft (represented by the Douglas DC-8-50 and -60 series and the Boeing 707-320B aircraft) operating on longer flights, such as non-stop trips from Portland to Chicago and to Hawaii.

The perceived noise level contours were drawn to depict a range from 90 to 120 PNdB, covering the noise exposure range of most interest in community situations. Contours are not shown for levels less than 90 PNdB since field experience and laboratory tests have indicated that flyover noise having maximum levels of less than 90 PNdB are not likely to be of concern in most community areas.

In our technical report, we present the contours overlaid upon the takeoff and landing flight paths from Runways 10L and 10R, and Runways 28L and 28R.* These flight paths were chosen, since our review of airport flight procedures and of wind data indicate that operations from these runways account for 95% of all jet operations.

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* These noise contours have been or will be furnished in the form of transparent overlays drawn to appropriate scale for use of the Port of Portland in study of varied flight path/runway configurations.

Inspection of the contours provided in our report permits detailed comparisons of the noise exposure for any specific location in the Portland-Vancouver area. In our report, we presented such comparisons for three locations:

1. For a typical downtown Vancouver, Washington area (as represented by the intersection of Washington and 8th Streets), we found that the differences in levels ranged from -3 to -12 PNdB. This change indicates a moderate to sizable reduction in both takeoff and landing noise levels with the proposed new runway configurations.

2. For an area in Parkrose, Oregon (as represented by the intersection of N. E. Prescott Street and N. E. 105th Avenue), where takeoffs from Runway 10R are of most significance, changes of -2 to -3 PNdB were predicted. This change represents a moderate reduction in noise levels with the proposed runways.

3. For a "Northshore" residential area in Washington, as represented by the intersection of S. E. Evergreen Highway and S. E. Ellsworth, our examination showed that noise levels will be appreciably less than 90 PNdB for operations from either the existing or proposed runways. Since the proposed new Runway 10L-28R will be closer to the northshore area than the existing runway, there will be an increase in noise

> levels of 3 to 4 PNdB during takeoffs from the proposed Runway 10L. This represents a moderate increase in noise levels, with expected peak levels remaining appreciably less than 90 PNdB.

Following the above examples, the noise contours presented in our report may be used to determine noise exposure in many other areas of interest. We believe that study of the noise exposure by means of such examples will show that the proposed new runway configurations tend to minimize aircraft noise exposure in most residential areas, and that the proposed flight paths take maximum advantage of non-noise sensitive land areas.

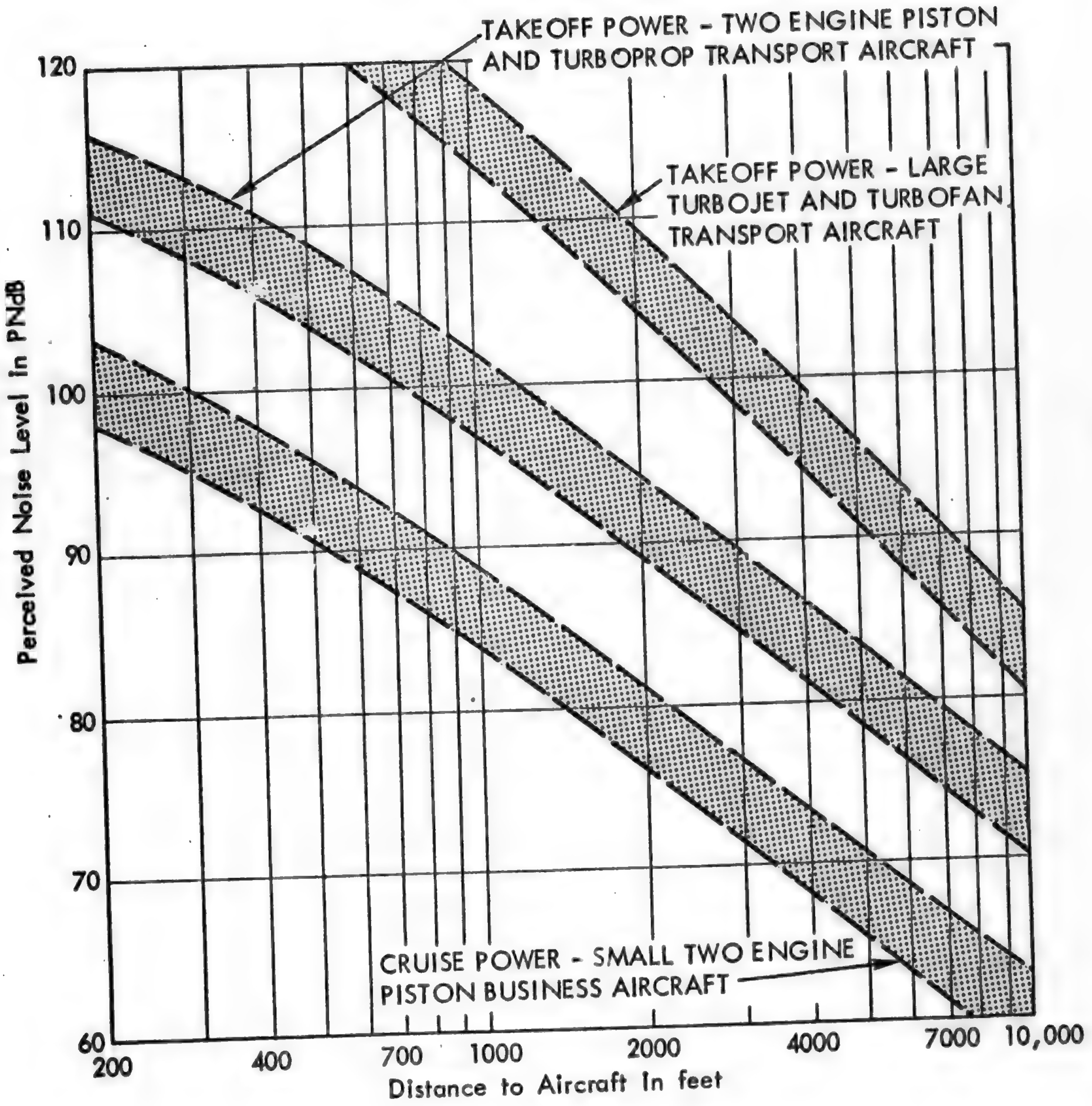

FIGURE 1. VARIATION OF TYPICAL AIRCRAFT NOISE LEVELS WITH DISTANCE

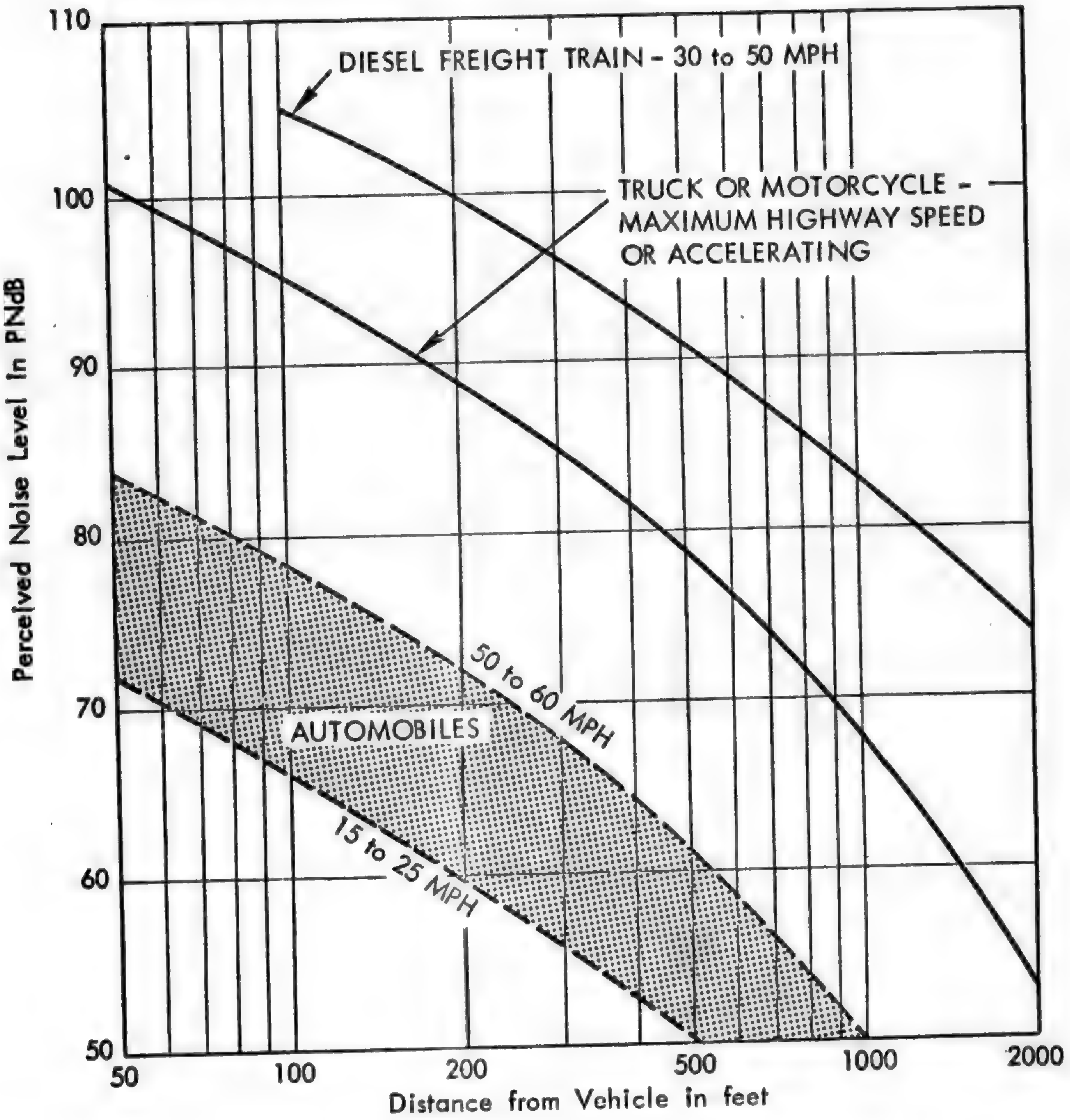

FIGURE 2. TYPICAL INTERMITTENT NOISE PRODUCED BY SURFACE TRANSPORTATION VEHICLES

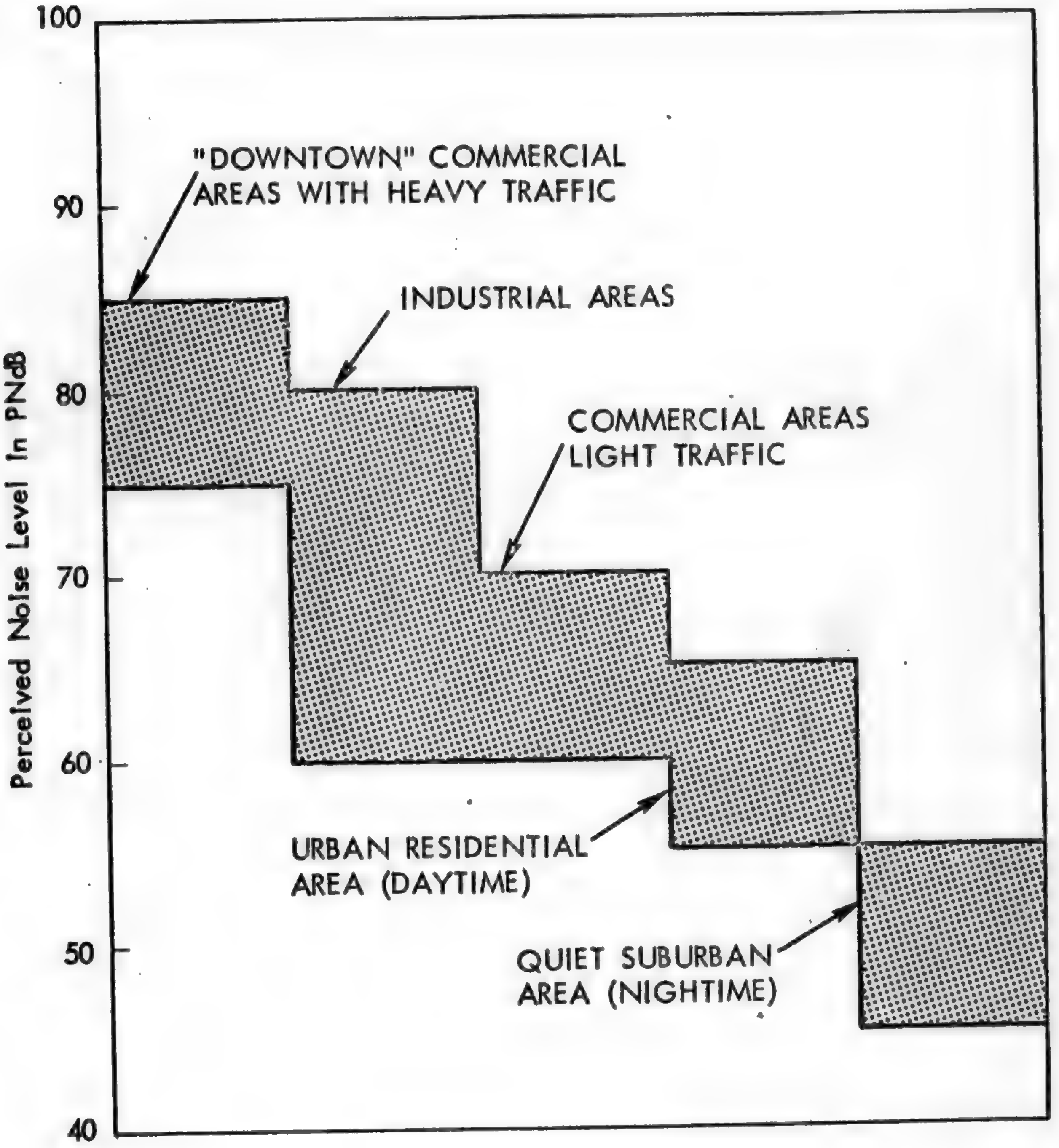

FIGURE 3. TYPICAL CONTINUOUS BACKGROUND NOISE LEVELS

BURNS & McDONNELL
ENGINEERING COMPANY
ENGINEERS ARCHITECTS CONSULTANTS
4600 E. 63RD ST. TRAFFICWAY
KANSAS CITY, MISSOURI

TELEPHONE: 816-333-4375
TWX: 910-771-3130

MAILING ADDRESS:
POST OFFICE BOX 173
KANSAS CITY, MO. 64141

January 18, 1968

The Port of Portland
P. O. Box 3529
Portland, Oregon 97208

Attention: Mr. George D. Hext
Manager, Aviation Department

Gentlemen:

As investigations proceed to determine the feasibility of expansion of the Portland International Airport, it seems appropriate to submit an interim report to recapitulate our findings and recommendations which have been submitted from time to time.

Early in our studies relating to expansion of PIA we determined and so recommended that the Port should not make the large investments which would be required to expand the passenger capacity of PIA to its ultimate unless a way could be found to produce more space and width for passenger terminal as well as additional space for various ancillary functions.

At that time we recommended that a determination be made of the feasibility of moving the south runway approximately 2,000 feet to the south, which we indicated would produce the result necessary to make PIA a first class airport and allow unhindered and uncongested growth of the aviation industry at Portland. We also recommended that, if PIA could not be modified to provide this kind and amount of additional space, the Port and its aviation tenants should consider a reasonably early move to a new airport coupled with the barest minimum interim expenditures at PIA.

When it was learned that the relocation of the south runway at PIA was not feasible for the immediate future, the Port began studies pointing toward selection of a new airport site. During this time the idea, now being explored, of relocating the north runway toward the north a distance of 2,000 feet was generated. When this idea was brought to our attention it became immediately apparent that such modification would produce even greater benefits than would have the relocation of the south runway. This

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would result because of the even longer unobstructed central area between primary runways which will be produced. We recognized that such expansion can produce the potential to allow PIA to properly serve as the commercial airport for the Portland area for the foreseeable future, probably through the 20th century.

It should also be recognized that the proposed method of PIA expansion will produce an installation which should always remain a commercial airport. In other words, when and if expansion beyond its capability is required, Portland will develop its second commercial terminal not at the expense of abandoning PIA for its present use.

Before entering into the technical details of this report, it should be stated that The Port of Portland is wisely planning a system of airports to aid in allowing PIA to continue its primary function of serving commercial aviation. Such airport system will provide adequate and convenient bases for general aviation aircraft which otherwise could and probably would use up airfield capacity needed for commercial aviation at PIA. As a part of such airport system it is planned to develop a fully instrumented general aviation airport, capable of being expanded to serve aviation related industrial requirements, and possibly to finally become Portland's second commercial terminal. Such long range planning is a hedge and a guarantee that Portland will not find itself unable to keep pace with the aviation industry, regardless of the unpredictable turns that industry may take in the future.

Discussion of the capacities and capabilities of PIA in its proposed expanded configuration will be broken down into several parts, as follows:

I. Capacities

    A. Aircraft Operations

    B. Relationship of A to Passenger Capacity

    C. Terminal and Loading Positions

    D. Surface Access & Parking

    E. General Discussion of I.

II. Cargo & Mail Facilities Development Potential

III. Aircraft Maintenance Facilities Development Potential

IV. Potential for Airport Related Commercial and Light Industrial Development.

V. Potential to Serve the Needs of Future Aircraft Types

VI. Long Range Costs

## I.A. Capacity for Aircraft Operations

It is proposed that the expansion of PIA will provide primary runways fully capable of simultaneous and independent operations. The runways are planned to be of sufficient length to allow takeoff by any known or planned commercial aircraft bound for its maximum stage length and carrying its design maximum payload.

It is further planned to extend the cross-wind runway to allow landing by any known commercial aircraft when cross-wind conditions dictate. A parallel cross-wind runway for light aircraft is also planned. The latter can be extended to handle landings by most commercial aircrait when necessary. Thus, the cross-wind installations should not be a significant limiting factor in acceptance rate at PIA.

The airfield will be easily able to handle 450,000 annual operations. Experience at other airports has proved that airfields with configurations similar to PIA can in fact exceed 500,000 annual operations with safety.

The future mix of aircraft types at any airport is difficult to predict, but one fact is known; that is, as an airport's air space and field begin to congest, and as fast and heavy aircraft begin to be a significant portion of the traffic the light aircraft operators tend to seek other bases, thus improving the capacity for heavy aircraft. Predictably the time will come when a proportion of capacity in excess of 50% can be made available for commercial aviation, especially during periods when commercial capacity is required.

It is, then, reasonable to assume that 250,000 operations (or 125,000 departures) will be available to commercial aircraft. This compares to about 30,000 departures in 1966.

## I.B. Relationship of Aircraft Operations to Passenger Capacity

At present, the average number of passengers boarding departing carrier aircraft at Portland is about 28. This average tends to double each 15 years. The forecast of average enplanements at Portland for 1980 is 56. Before the turn of the century this figure will rise to 100 or more. The size of aircraft serving Portland will similarly increase, providing more average seats per departure.

If in 1995 the average enplanements are 100, and the annual departures number 125,000 the number of enplaning passengers which could be handled would be 12,500,000. As Chicago O'Hare is now approaching this number with 70 gates and less than one-half the average of 100 enplaning passengers, it can be seen that the prediction is conservative. It is likely that PIA will be able to enplane somewhat in excess of that number.

## I.C. Terminal & Loading Position Capacity

From the above, it can be seen that PIA should be developed to handle in excess of 12,500,000 departing passengers per year and that its roadway systems, parking, terminal building(s), gates and all functions related to passenger handling should be so planned.

Terminal building spaces will be programmed and a number of gate loading positions selected to relate thereto. PIA will ultimately have terminal facilities aggregating 1,250,000 to 1,500,000 square feet of space and 72 to 80 gate loading positions.

It should be recognized that the number of loading positions needed has a direct relationship to average enplanements. A loading position will continually have greater potential for passenger handling as this average increases. Many loading positions presently enplane in excess of 100,000 passengers. The six gates of United Air Lines at Portland are examples. Chicago O'Hare total number of gates far exceed this. This is being accomplished with average enplanements less than one-half the predicted 100.

It is, then, perfectly reasonable that when PIA is generating 12,500,000, or more, enplaned passengers its loading positions will be handling up to 200,000 each. Thus, the planned 72 to 80 gates could be able to enplane in excess of 15,000,000 passengers.

The passenger terminal land area is being planned so the above facilities can be comfortably fitted into them.

## I.D. Surface Access & Parking

From experience at many airports an empirical formula has been developed which relates enplaned passengers to automobiles entering and leaving

Does this include
access for cargo?

the airport in its peak hour. 5000 vehicles per hour relates to approximately 12,000,000 annual passengers and 6665 vehicles per hour relates to 16,000,000 annual passengers. PIA will be planned for the latter figure. This can be reasonably accomplished because there can be developed three main accesses; one from I-205, one ~~from~~ from 82nd Avenue, and one over the present route of Marine Drive from the west. A sufficient number of lanes will be planned, as well as interchanges, to assure a smooth flow of traffic into and through the passenger terminal area as well as into the commercial, cargo, and hangar areas.

Again, using an empirical formula, the number of automobile parking positions required at an airport varies from one position per 700 annual enplanements to 1 per 1000. Portland, as well as most West Coast cities tends to make more than average use of automobiles so the greater number of ultimate parking positions should be planned for. This would indicate an ultimate requirement for more than 18,000 parking positions.

Depending on the terminal concept finally selected for PIA, there will be available in excess of 8,000 parking positions on the ground. The number of ground positions at a convenient distance will vary downward from this, again depending on the finally approved concept and layout. Most of the concepts being studied would have no more than 6,000 ground positions within reasonable distances. No more than this can logically be planned because the physical size of a lot must be held to some reasonable maximum for convenience. It can be seen, then, that planning must take into account a great amount of structural parking for the future, or for remoted parking served by a transit system, or both.

## I.E. General Discussion

The ability to materially increase the size of the passenger terminal area afforded by the proposed expansion of PIA allows great latitude in effecting a master plan. The area tentatively allocated for the passenger terminal is comfortably sized and will allow for clearances for aircraft considerably larger than the forthcoming generation of jets, both subsonic and supersonic. Sufficient land areas will be available to make maximum reasonable use of ground auto parking and to produce adequate internal roadway systems. The terminal area can be planned and built to utilize all capacity inherent in the expanded airfield, and no constraint of any type is evident. This is not the case with the existing airport configuration, where the extreme narrowness of the area available for terminal development places serious constraints on ability to properly plan and build an adequate passenger terminal.

## II. Cargo and Mail Facilities Development Potential

The proposed PIA expansion makes available approximately 8,500 linear feet of excellent airside frontage for cargo and mail development. The depth of this frontage affords an assurance that neither cargo buildings nor aircraft are likely to become large enough to obsolete this area. The acreage to be allocated to these functions is large in comparison to most airports and very likely exceeds what will be needed at Portland. As an example, if the air mail facility requires 600 feet of frontage (16 acres), this will leave 7,900 feet for cargo. It is feasible to locate 32 positions, all sized for aircraft as large as the forthcoming stretch of the 747. If these positions were used three times each day for cargo loading and a payload of 25 tons were placed on each aircraft (less than 50% design payload) there could be a movement of 2400 tons of outbound freight per day. This compares with an average daily movement of 21 tons of outbound freight at Portland in 1966, and with a forecast of an average of 165 tons per day in 1980.

[illegible] trucks

If future growth proves the area allocated to cargo to be larger than required, a portion of it can be reallocated to aircraft maintenance or other functions.

## III. Aircraft Maintenance Facilities Development Potential

In the proposed plan there has been allocated approximately 7,000 linear feet of airside development area for aircraft hangars. This area could serve for either line maintenance or overhaul functions.

Requirements for these facilities are not presently definable. The need will certainly arise as Portland becomes increasingly an originating and terminating station, both for domestic and international flights.

The area allocated could comfortably accept 10 hangars of 2 to 3 bays each with sufficient area remaining for auto parking and overnight parking of aircraft. This potential appears to be ample for the foreseeable future.

## IV. Potential for Airport Related Commercial and Industrial Development

The widening, as well as lengthening, of the important central area between the primary runways not only allows ample lengths of deep airside development but also provides for 14,000 lineal feet of leasable area with a depth of 500', ideally situated for access and developable for commercial or light industrial use. This 160 acres of property is an outright plus resulting from reconfiguring the airport. While the existing PIA does have some shallow development space along the apron areas on each side of the entrance road, it offers no space of the type described here. In the case of the existing airport, any development of any type on either side of the entrance road would use up airside frontage whether the installation required it or not.

Some of the types of installations which could be installed in these areas are a hotel or motel, catering service for in-flight food, service station, servicing area for car rental agencies, railway express agency, freight forwarders not requiring apron frontage, etc. The space to be provided for developments of this type appears generously adequate.

## V. Jumbo Jet & SST Compatibility

The layout of proposed PIA expansion provides for both primary runways to be 12,000 feet in length with the potential for the south runway to ultimately be extended to 14,000 or more feet. This will allow unconstrained use of PIA by any aircraft existing or being planned. So far as is known the aircraft manufacturers, airport operators and government agencies have mutually agreed that future aircraft must be capable of operating on airfields configured for present day aircraft. It appears therefore that the primary runways will not be a limiting factor.

Apron widths and planned clearances can, with the expanded width of area, be made sufficiently large to allow parking and traffic flow by the jumbo jets and SST with no difficulty. In fact, the clearances to be planned will allow use of aircraft larger than any now envisioned, including the Boeing 800 passenger aircraft now being programmed for 1978.

PIA will be far more capable of handling future aircraft than any existing airport, with exception of Dulles International, and should not be exceeded by airports now in planning.

## VI. Immediate and Long Range Costs

It has been estimated that the capital outlay for the first stage expansion of PIA will approximate $65,000,000. Development of a new airport with comparable facilities is estimated to require an initial outlay of approximately $128,000,000.

The difference in costs of the initial developments of the two plans is brought about principally by the necessity to abandon for commercial use the facilities at PIA and to replace those facilities at a new site. The facilities to be abandoned would include stopgap construction necessary to keep PIA operational in the interim.

Thereafter, in the various expansions required at either site, costs would be more nearly equal, as essentially the same developments would take place at the same time periods.

When consideration is given to development of the entire system of airports, both for general aviation and for commercial use, the gross capital outlay to the end of the 20th century is estimated as $161,000,000 for the PIA expansion plan and $216,000,000 for the new airport development plan.

This $55,000,000 difference in costs, when related to 1970 present value, reduces to $41,000,000.

Taking full account of the foregoing, it is recommended that The Port of Portland expand and remain at PIA if current feasibility studies are favorable.

Respectfully submitted,

BURNS & McDONNELL
Engineering Company

E. J. Runyan

EJR:mc

BURNS & McDONNELL
ENGINEERING COMPANY
ENGINEERS ARCHITECTS CONSULTANTS
4600 E. 63RD ST. TRAFFICWAY
KANSAS CITY, MISSOURI

MAILING ADDRESS:
POST OFFICE BOX 173
KANSAS CITY, MO. 64141

TELEPHONE: 816-333-4375
TWX: 910-771-3130

March 20, 1968

The Port of Portland
P. O. Box 3529
Portland, Oregon 97208

Attention: Mr. George D. Hext
Manager, Aviation Department

Gentlemen:

Enclosed are budgeting estimates for first stage expansion at Portland International Airport and for the first stage construction producing like facilities at a new airport site. The St. Paul site was selected for this purpose. The budget estimate for PIA expansion does not include the indeterminate costs incident to recovery of leased property.

Admittedly, the budget for a new airport is rough and general. However, it was checked against a similar airport for which bond funds have been secured. Much of the construction is complete, some under way, and designs for the balance are well along. The airport is Kansas City International (formerly Mid-Continent International). When its first stage is complete, $83,000,000 in construction funds will have been expended. Of this, $20,000,000 was expended between 1955 and 1962--the balance after 1965. Completion will be in 1970.

Kansas City International has an area of 5,400 acres costing $600,000 in 1955. It will open with one primary runway of 10,000 feet and one crosswind of 9,500 feet. Its terminal is a relatively austere type with 45 gate loading positions.

A new airport for Portland would require land estimated to cost a minimum of $7,500,000. It would have a second parallel primary runway costing some $5,000,000, including airfield lighting. If Kansas City International had made these expenditures, their construction capitalization would have been $94,900,000. The mid-year of their expenditures will be 1969; for Portland it would be about 1971. Cost escalation for these two years is estimated as 10%, raising the cost to $104,400,000. When the same 15% cost of interest, fees, bond sale, etc., as used in the budget estimate is added, the total is $120,000,000. It, therefore, appears that the estimated cost for a new airport is conservatively low.

111 EIGHTH AVENUE
NEW YORK, NEW YORK 10011

2671 S.W. 27TH AVENUE
MIAMI, FLORIDA 33133
PHONE: 305-445-5381

P. O. BOX 245
MERRITT ISLAND, FLORIDA 32952
PHONE 305-632-8484

There would arise other additional costs for a new airport in the Willamette Valley. It is felt that the freeway would require expansion or that a new highway would be required in the near future. The costs of moving from PIA, while not determinate, would be significant to the Port and to the air carriers.

While it can be anticipated that PIA would eventually carry its own cost as a general aviation and/or cargo airport, there would likely be a period of time during which it would run a deficit.

When all aspects of Portland's airport problem are weighed, there seems to be no doubt that expansion of PIA and its continuation as Metropolitan Portland's commercial airport is the best course of action. Two major factors, both of which are known to you, make the case for this statement:

1. The air carriers serving Portland have declined to agree to support the development of a new airport even though the Port made such proposal to them. They have unanimously expressed themselves as willing to support the expansion of PIA. This one factor alone is virtually overriding.

2. PIA is closer to the bulk of the population than would be a site in the valley, and as such should serve the majority of air travelers more conveniently.

We, therefore, and without reservation recommend that Portland International Airport be expanded and continue to serve as the area's commercial air terminal.

Very truly yours,

BURNS & McDONNELL
Engineering Company

EJRunyan

E. J. Runyan

EJR:cal

Encl.

BURNS & McDONNELL
ENGINEERING COMPANY
ENGINEERS ARCHITECTS CONSULTANTS
4600 E. 63RD ST. TRAFFICWAY
KANSAS CITY, MISSOURI

TELEPHONE: 816-333-4375
TWX: 910-771-3130

MAILING ADDRESS:
POST OFFICE BOX 173
KANSAS CITY, MO. 64141

March 20, 1968

The Port of Portland
P. O. Box 3529
Portland, Oregon 97208

Attention: Mr. George D. Hext
Manager, Aviation Department

Gentlemen:

Subject: Studies Relating to Realignment of Portland International Airport Runway

The plan of expansion of Portland International Airport by a 2,000' lateral northward movement of Runway 10L/28R has been objected to by the City of Vancouver, Washington. They contend that the noise nuisance would be increased by such plan.

Out of respect for the desires of that city, The Port of Portland has expressed its willingness to investigate alternate solutions for PIA expansion.

In studies of such alternate solutions, it became immediately apparent that a rotation of the proposed north runway to better align it with the Columbia River, especially on its westward extension, would accomplish the desired purpose. However, if 10L/28R were rotated and 10R/28L were left in its present alignment, the two runway extensions would converge in the airspace to the west and create an undesirable and capacity reducing condition.

Therefore, the studies envision an accompanying rotation of 10R/28L, the south runway. Such action would result in the requirement for at least a partial recovery of property now under lease to the United States Government and used by the Air Force and the Air National Guard. However, the military operations at PIA are continually becoming less compatible with the airport's primary functions.

The next step in the studies was to establish the optimum degree of rotation of the two primary runways and to establish their optimum north-south location. The criteria used in this operation assumed that a minimum of 5,000' separation of runways must be achieved; that noise nuisance must be minimized for the greatest benefit to persons on both sides of the Columbia; that the ability to eventually extend at least one of the primary runways well beyond 12,000' be maintained; that at least as much prime and secondary development area be produced as existed in the non-rotated plan and last, that maximum economy be achieved commensurate with the above.

After extensive investigation by Burns & McDonnell working with the Port staff, an alignment has been recommended. This changed configuration involves a 7-1/2° counterclockwise rotation of both primary runways about a point near the midpoint of the planned north runway, coupled with a 350' southward shift of both primary runways. Reasons for this selection are as follows:

1. Maintains extended centerline of the north runway over the Columbia River and produces excellent noise abatement.
2. Rotates extended westward centerline of this runway away from the Columbia River shipping channel.
3. Permits placing the east end of the north runway at a greater distance from proposed I-205, thus obviating the requirement for blast fences or other protective devices. This decrease of length on the east end is made up by a like ultimate extension to the west where very little width of dredge fill is required, producing a 12,000' runway.
4. Rotates the extended alignment of 10R/28L away from heavily populated areas in the Parkrose vicinity with no adverse effect on the westward extension of this runway.
5. The 7-1/2° rotation of the primary runways has no adverse effect on wind coverage.
6. The realignment maintains central development areas east of the crosswind runway equal to those provided in the previous expansion plan. In addition, the rotation and movement of the south runway widens the area to the west of the crosswind runway to produce over 400 acres of prime development property. Since this area can be approached on good roadway systems not in conflict with those serving the passenger and cargo terminals, an industry or industries employing thousands of persons could be tolerated without danger of congestion and subsequent obsolescence of the airport.

7. The 350' southward movement of the primary runway complex was planned for reasons of economy. This amount of movement was selected for the following reasons:

   (a) Allows the realigned south runway to be constructed while maintaining operations on the existing runway.

   (b) Allows continued operation of the Air National Guard for an interim period of time.

   (c) Allows a future dual runway to be constructed 1,000' south of the south runway when capacity demands dictate. Sufficient property is left south of this future dual runway for excellent development for aeronautical functions.

One disadvantage of the amended plan is that reconstruction of both, rather than one, primary runways is required causing some increased disruption and inconvenience. Another is the requirement to dislocate at least a part of the military operation. There will be a requirement for advancing the timing of some land acquisition at the ends of the realigned south runway.

Cost estimates indicate that the savings in dredge fill and blast fences for I-205 will at least equal the cost of reconstructing the south runway. Thus, the only increases in cost of the rotated plan would be the presently indeterminate expense for recovery of the property under lease to the U. S. Government and the advanced land requirement.

The advantages of realigning the primary runways far outweigh the disadvantages if the above mentioned property can be recovered quickly and without great expense.

It is strongly recommended that The Port of Portland proceed without delay to adopt the plan outlined above and proceed immediately with its implementation. Application should be made to the Corps of Engineers for a dredge permit, and designs should be rushed for the dredge fill and reconstruction of the south runway to permit early terminal development.

Delays must be minimized because the present PIA facilities are approaching saturation, and even with the expedient measures being taken to expand them, it is doubtful that they can serve Portland beyond 1971.

Respectfully submitted,

BURNS & MC DONNELL
Engineering Company

E J Runyan
E. J. Runyan

EJR:cal

## COMMERCIAL AVIATION AIRPORT REQUIREMENTS

Forecasts of the facilities requirements of commercial aviation are related to traffic forecasts, but the ratio of facilities to passengers, or freight tonnage, may not be a linear relationship. Variations involve type of aircraft, aircraft seating arrangement, airline schedules, airline ground operation efficiency, and airline philosophy toward passengers and the passengers' needs or desires.

An estimate of terminal gate requirements, based on assumed conditions, has been superimposed on the passenger forecast curve in Exhibit No. 1 to illustrate generally the future expansion needs to an ultimate of as many as 80 gate positions. This capacity will exist at expanded PIA and would also be envisioned at a new site. Exhibit No. 1 also shows the conditions under which the facilities will theoretically be overloaded and when there might exist an apparent surplus of gate positions. The latter condition would probably never become a reality since traffic growth over the past decade has caused the demand for gate facilities to precede the availability. This diagram applies specifically to Portland International Airport under present and anticipated conditions, but the same future passenger forecast and gate loading requirements would apply to any site.

It has been shown that with primary runways capable of simultaneous and independent operations, PIA will be capable of handling in excess of 500,000 annual operations with safety. With 50% of the runway capacity available to commercial aviation, 250,000 operations (or 125,000 departures) will be commercial aircraft, comparing with approximately 30,000 commercial departures at Portland in 1966 carrying 850,000 enplaning passengers, at an average of some 28 passengers per departing aircraft. This average figure doubles at approximately 15-year intervals, providing a forecast of 56 average enplanements at Portland in 1980 and 100 or more in 1995. The size of aircraft serving Portland will also grow, providing more seats per average departure. If the average enplanements in 1995 are 100, and the annual departures number 125,000, the number of enplaning passengers handled will be 12,500,000. With Chicago's O'Hare International Airport now approaching this number with only 70 gates at less than half the average of 100 enplaning passengers, it can be seen that the prediction is conservative.

A loading position will have continually increasing potential for handling passengers as the average enplanements increase; thus, the number of loading positions required has a direct relationship to the average enplanement. The six gates of United Air Lines at Portland presently enplane in excess of 600,000 passengers with the average Portland enplanement at 28. An ultimate of 200,000 annual enplanements per gate, therefore, appears to be perfectly reasonable and with 80 gate positions, would represent a potential total of 16,000,000 enplaning passengers.

Empirical formulae developed for consideration of surface access and parking relate enplaned passengers to automobiles entering or leaving the airport in its peak hour. According to the formulae,6,665 vehicles per hour relates to 16,000,000 annual passengers. Adequate access for these vehicles must be provided at Portland's major airport.

Referring further to the formulae, the number of automobile parking positions required at an airport varies from one position for 700 annual enplanements to one position for 1,000. Portland, as well as most other west coast cities, makes more than average use of automobiles so the higher rate of parking is planned for, requiring more than 18,000 parking positions.

Forecasts of air freight growth vary, but, in general, are highly optimistic with estimates of increase from 800% to 1800% by 1975. The recommended plan for expansion provides the ability to increase Portland's air freight 100 fold, if necessary, with the airside space becoming available for other uses in the future if such growth does not materialize. This flexibility is an airport feature enjoyed by a very few communities in the world.

All forecasters agree that regardless of the amount of growth, air freight will always be an integral part of the airline passenger operation and must, therefore, remain on the airport from which passenger aircraft operate.

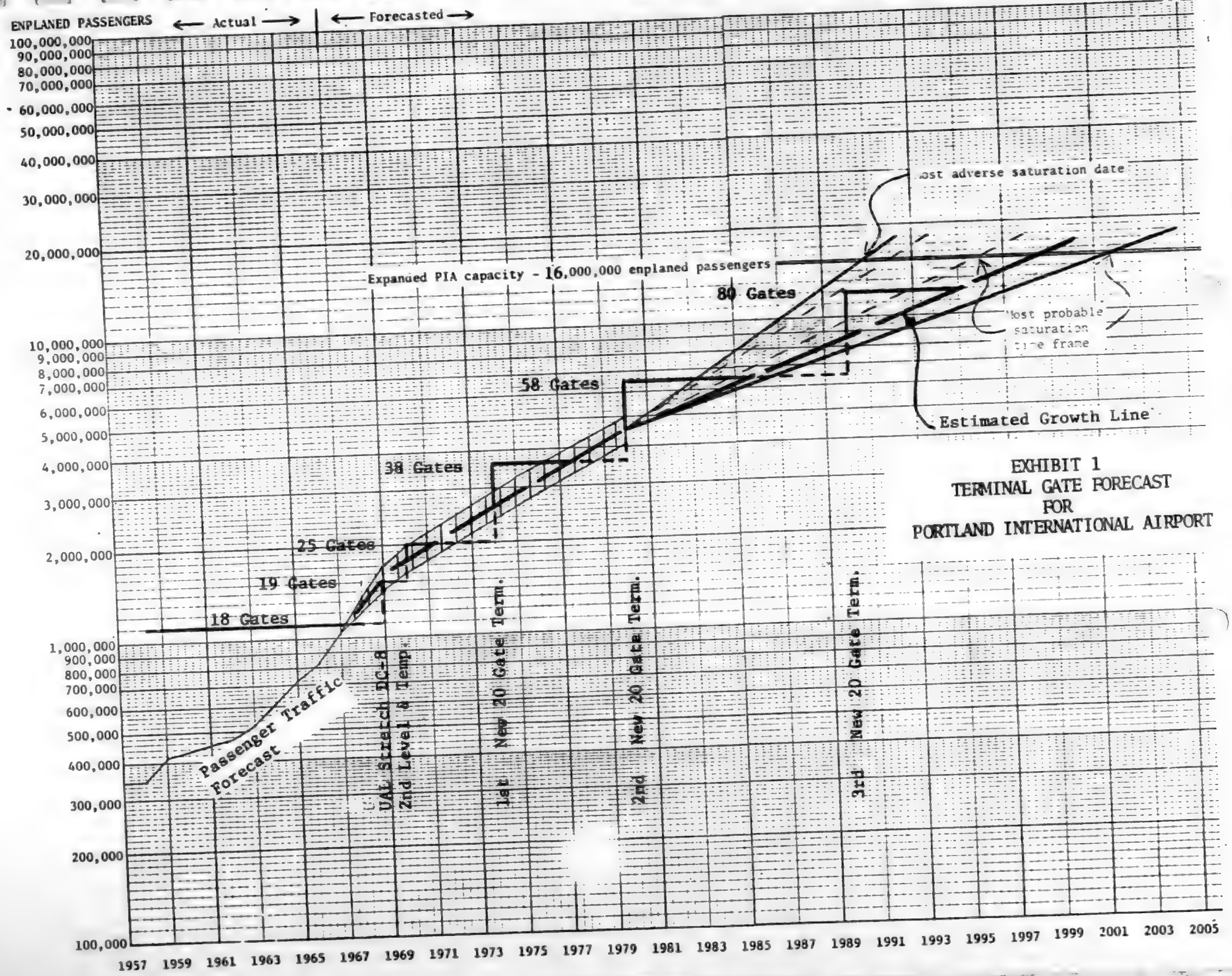


EXHIBIT 1
TERMINAL GATE FORECAST
FOR
PORTLAND INTERNATIONAL AIRPORT

## C. Regional Aviation Study

### 1. Technical Aspects

#### (a) Topography

St. Paul Site. The topography is generally flat with an elevation variation in the primary area of less than ten feet. The exceptions to this include two drainageways varying from 15 to 20 feet in depth located at the ends of two of the runways. These drainageways are too narrow and shallow to be considered a major construction problem for the site.

Flooding will be no problem since the river in that area is approximately 100 feet below the elevation of the site.

PIA. The topography of the site is flat with variations occurring only in controlled drainageways and at dikes along the river. The major topographical impedance to the expansion of this airport as recommended has been solved by the proposed relocation of the south channel of the Columbia River and a land fill for the northerly expansion.

Flooding is controlled by dikes along the Columbia River and pumping stations which dispose of area runoff.

#### (b) Area Drainage

St. Paul Site. This site is traversed by Mission

Creek and Champoeg Creek draining from the northeast. A small portion of the site drains directly into the Willamette River. There are no unusual problems in controlling the drainage; however, it is expected that for proper pavement design it may be necessary to provide subsurface drainage along the runways.

PIA. Existing patterns of drainage into the Columbia Slough are sufficient to handle the surface drainage problems anticipated at the airport. The high water table at the airport will require additional subdrainage systems in future construction.

(c) Construction and Fill Material

St. Paul Site. There would be no general requirements for site grading except as required by the individual construction increments and the two minor fillings of the two drainage ways. Material for this can be obtained from the site itself or from the Willamette River; however, there will be need for substantial amounts of crushed rock, gravel, and sand for foundations and pavement construction. Substantial deposits of sand and gravel are reported to exist within the Willamette River within ten miles of the airport site. Crushed rock can be found in natural gravel deposits along the river or in the land promontory known as LaButte located about eight miles from the site. Other building materials and labor for building projects are readily available and constitute little problem or extra cost in the airport's building program.

PIA. All fill material will be obtained from dredging in the Columbia River. Crushed rock and other materials necessary for construction can be obtained from the nearby sources along Columbia Boulevard.

(d) Obstructions

St. Paul Site. The general terrain of the site is flat or gently rolling with well defined hills in isolated areas. These high points are as follows: north of the Willamette River, approximately five miles off the east runway, are Parrett Mountain and Ladd Hill; approximately eight miles south of the east runway are the Eola Hills; approximately seven miles off the crosswind runway are the Red Hills of Dundee. The position and alignment of the runways locate the approach to all zones to clear the high areas and place the control points well below the height limitations imposed by FAA standards for ILS approaches.

PIA. The site is located in the flat alluvial plain along the Columbia River running approximately east and west. High points in the area are as follows: approximately 12 miles west of the runways are the Tualatin Mountains; approximately 11 miles of the runways is the Chamberlain Hill (neither of which presents any obstructions to ILS approaches to the major runways); six miles southwest of the crosswind runway the west hills of Portland are the only high points in the approach; the bluffs on the north side of the Columbia River and the south side of Columbia Boulevard present no problem but limit the crosswind runway to VFR operations. However, the realignment of the major runways as shown in the recommended plan reduces the need for using the crosswind runway by turning the major runways an additional 7 1/2 degrees into the crosswind direction.

(e) Utilities

Water System

St. Paul Site. There are three possible sources for water: the Willamette River, wells, and the City of Portland. Of the three, the wells appear to be the most feasible. It has been reported that there is good ground water supply in the area needing only a minimum of treatment to remove retained minerals. Because of

ICC regulations pertaining to an international airport, the water supply would have to be of high quality and in sufficient quantity to provide adequate fire protection. This would require a substantial storage reservoir and pumping system. Additional study must be made to determine whether the quantity or quality of locally available water is adequate for both domestic use and fire protection for an airport of this size.

PIA. Water supply for PIA is from the City of Portland whose water quality and quantity are sufficient for any activity we would expect at PIA.

Sewage System

St. Paul Site. Woodburn is the closest community that maintains a sewage treatment plant. However, the small size of its plant and the long distance of the service from the airport indicate a separate airport system would be less expensive. Indications are that the State would require secondary treatment of the effluent before dumping into the Willamette River.

PIA. It is expected that in the development of the first-stage expansion sewer treatment would be supplied either by the County in a service district or by a hook-up to the City of Portland system.

(f) Transportation Service

St. Paul Site. Freeway I-5, the major north-south route through Oregon, is approximately 4 1/2 miles from the site and provides the major connection from the site to Portland and the remainder of the Willamette Valley to the south. Via this route, the terminal would be approximately 25 miles from the Portland City Hall. A road-widening program is presently under way and it is anticipated that in approximately four years there will be six lanes from Portland to Salem. New interchanges and a limited-access highway from the freeway to the airport would have to be built. I-5 would service the Portland metropolitan area via its connections to I-205 on the east side of Portland and the Beaverton bypass into the Tualatin Valley west of Portland. These connections should give adequate regular service for the first-stage development.

In addition to the road service, there is railroad service via the Oregon Electric Railroad owned by SP&S which could service industrial sites located near the airport and possibly in the future as a means for mass transit between the airport and population centers north and south. Water transportation to the site on the Willamette River would be limited to approximately 3 1/2 feet draft until a combination of rebuilding the locks at Oregon City and a dredge program in the Willamette River would allow approximately a 6 foot maximum draft vessel to service the site.

PIA. Primary access to the airport currently is via the Banfield Freeway and 82nd Avenue, placing the present terminal approximately 11 miles from the Portland City Hall. When I-205 is completed it will provide the main access to the airport via a separate interchange and limited-access road; however, 82nd Avenue will remain as an important route well beyond the first stage of expansion. Airport oriented industry locating on the west side of the airport should have vehicular access separate from that serving the remainder of the airport site by I-205 and 82nd Avenue. This may require construction of the 52nd Avenue Freeway as shown on the City's Comprehensive Development Plan.

Railroad service to the site can be provided from the Union Pacific Railroad line located along Columbia Boulevard for industrial development associated with the airport. Water transportation service to the airport is available along the Columbia River in the vicinity of N.E. 47th Avenue.

3. Cost Analysis. Based on the experience of the Port in its construction programs at PIA and what our consultants have had at Kansas City International Airport, the following cost estimates were made on building the first-stage airport plan at St. Paul and PIA. First stage is 36 gate positions, two parallel runways and a crosswind runway. The same layout plan was used at both sites.

| | PIA | ST. PAUL |
|---|---|---|
| Land Purchase | $ 5,000,000 | $ 7,500,000 |
| Site Grading (including dredge fill) | 8,500,000 | 2,500,000 |
| Access Roads and Interchanges | 1,500,000 | 3,950,000 |
| Service Roads | 1,000,000 | 1,300,000 |
| General Area Drainage | 500,000 | 2,000,000 |
| Water Supply and Distribution System | 560,000 | 3,500,000 |
| Sewage Treatment and Outfall | 500,000 | 500,000 |
| Sewage Collection System | 586,000 | 586,000 |
| Power and Communication Distribution | 1,260,000 | 1,850,000 |
| Runway 9R (10,000' Primary Runway) | 3,706,000 | 5,200,000 |
| Runway 9L (12,000' Primary Runway) | 3,935,000 | 4,900,000 |
| Runway 2-20 (Crosswind Runway) | 1,650,000 | 4,000,000 |
| PIA Apron Expansion at Exist. Terminal | 225,000 | 225,000 |
| Cross Taxiway and Bridges | 1,320,000 | 1,320,000 |
| Signing, Landscaping | 500,000 | 500,000 |
| Road and Area Lighting | 370,000 | 500,000 |
| Fire Crash Building | 200,000 | 400,000 |
| Improvements and Temporary Expansion of Existing Terminal | 2,775,000 | 5,000,000 |
| Relocation of G.A. and Fuel Storage | 1,250,000 | |
| Purchase of UAL Cargo Building | 800,000 | 800,000 |
| Common Cargo Building and Apron | (Special Facility Bond) | |
| Miscellaneous Apron and Taxiway Work | | 750,000 |
| Lead-in Taxiway to G.A. Area | 168,000 | |
| Temporary Taxiway | 85,000 | |
| Land Fill for G.A. Area | 386,000 | |
| Temporary Cargo Facilities | 500,000 | |
| Military Pavement Removal | 500,000 | |
| Terminal Bldg., Aprons, Parking | 18,810,000 | 38,000,000 |
| Military | 2,000,000 | |
| Airport Maintenance Building | | 200,000 |
| General Aviation | | 1,000,000 |
| Marine Drive Relocation | 700,000 | |
| | $ 59,286,000 | $ 86,581,000 |
| 10% Contingencies | 5,928,000 | 8,658,000 |
| | $ 65,214,000 | $ 95,239,000 |
| 15% Interest, Fees, Etc. | 9,780,000 | 14,285,000 |
| | $ 74,994,000 | $109,524,000 |

## AIRPORT ACREAGE

The expansion and development of PIA will result in an airport comparing favorably with any in existence today. Comparable features of twelve of the largest airports in the country are tabulated below.

Fiscal Year 1967

| | Enplaned Passengers | *Cargo Tons Boarded | Acres |
|---|---|---|---|
| Chicago (O'Hare) | 10,675,209 | 174,482.13 | 6,521 |
| Los Angeles | 6,198,934 | 114,159.62 | 3,207 |
| Kennedy | 5,337,746 | 116,870.16 | 4,900 |
| Atlanta | 5,078,592 | 37,997.47 | 3,500 |
| Washington National | 4,119,397 | 19,603.95 | 861 |
| San Francisco | 4,030,169 | 81,754.37 | 2,300 |
| Dallas-Love Field | 3,807,760 | 43,424.43 | 1,400 |
| LaGuardia | 3,593,539 | 13,217.87 | 630 |
| Boston | 3,238,607 | 40,702.92 | 2,003 |
| Miami | 2,741,783 | 18,461.65 | 2,878 |
| Seattle | 1,295,961 | 12,056.53 | 1,600 |
| Portland | 836,589 | 7,994.00 | 4,697 |

*Does not include mail

RECEIVED
JUN 27 1968

COMMISSIONERS
GLENN L. JACKSON, CHAIRMAN
MEDFORD
KENNETH N. FRIDLEY, MEMBER
WASCO
DAVID B. SIMPSON, MEMBER
PORTLAND

Fred W. Hill, Member
Helix
Thaddeus Bruno, Member
Portland

STATE OF OREGON
STATE HIGHWAY DEPARTMENT
5821 N. E. Glisan
Portland 97213

June 25, 1968

Carl A. Petterson, M.D.
2612 S.E. Ellsworth Rd.
Vancouver, Washington 98664

Dear Dr. Petterson:

This will acknowledge your letter of June 20, 1968, ~~concerning~~ the Coast Guard's public notice #68-10 dated June 6, 1968, regarding our application for approval of plans for I-205 Columbia River highway Bridge.

As you noted in your letter, our plans were revised in order to be compatible with the Port of Portland's proposed PIA expansion. In the event the Port of Portland is not granted its dredging permit and would be unable to proceed with their proposed expansion, we would then re-analyze our plans and base our decision on existing circumstances and events at that time. If this were to happen, it is obvious that we would be confronted with the existing south channel as it is at the present time.

We are advised by the Port of Portland that the alignment of the small craft channel is in the process of being changed and which change will tend to alleviate the objections set forth by you. The alignment of this small boat channel, however, is a matter of the Port of Portland, and I would refer any matters pertaining to it to that agency. It is to be pointed out that improved clearances under this plan are possible.

We have also been advised by the Port of Portland that they have developed a mathematical computer model with excellent results, and in this regard I would refer you to the Port of Portland for further information. Also, for information regarding the text of our application I would refer you to the Coast Guard.

Very truly yours,

Original Signed by A. E. Johnson

A. E. Johnson
Metropolitan Engineer

AEJ:lh

bcc: Port of Portland
Attn: Adam Heineman
F. B. Klaboe
F. D. Morgan

RECEIVED
JUN 26 1968
OFFICE OF
STATE HIGHWAY ENGINEER

RECEIVED
JUN 24 1968
FOR FILING

June 21, 1968

Mr. Gene Arnold
Airport Development Manager
The Port of Portland
Post Office Box 3529
Portland, Oregon 97208

Dear Mr. Arnold:

Reference is made to your recent telephone call requesting a set of plans and profile showing as much of our proposed right-of-way requirements as possible on the crossing of the Columbia River by I-205. A copy of the information requested is enclosed. The right-of-way lines shown on the map are only approximate at this time but they should do for whatever purposes you need them.

I was also requested recently by Mr. Heinemann to ascertain definitely whether or not the Bureau of Public Roads would participate in the fill between the south end of this structure and Marine Drive required for the roadway section of I-205 in this area. I have received positive word from the Bureau that they will participate with Interstate funds in whatever is required for our roadway between these limits.

If we can be of any further assistance, please advise.

Very truly yours,

Forrest Cooper
State Highway Engineer

By

F. B. Klaboe
Assistant State Highway Engineer

9-19-68
Per phone call from Arnold, 3 sets of same plan & profile sent to the Port.

FBK:srb

Enclosures

cc: Forrest Cooper
R. L. Porter
Tom Edwards - Enc.
F. D. Morgan - Enc.
L. H. Young - Enc.
Ivan Merchant - Enc.

Form FH-121 (4-67)

UNITED STATES GOVERNMENT

*Memorandum*

Klaboe

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
BUREAU OF PUBLIC ROADS

477 Cottage St. NE. - Salem OR 97301

DATE: June 13, 1968

In reply refer to: 08-35-EC

TO : Mr. Forrest Cooper, State Highway Engineer
Salem, Oregon

G.W. Brooks

FROM : R. E. Simpson, Division Engineer
Salem, Oregon

SUBJECT: Oregon Project I-205-7(2)301
Lake Road - Washington State Line
Columbia River Crossing

In response to Mr. Klaboe's verbal request, the participation limits noted in our June 11, 1968 memorandum include the dredged fill construction for the highway from Northeast Columbia Boulevard to the south end of the Columbia River Bridge.

copies to Edwards
Morgan
Young
6-21-68 Merchant

RECEIVED
JUN 14 1968
OFFICE OF
STATE HIGHWAY ENGINEER

BUY U.S. SAVINGS BONDS REGULARLY ON THE PAYROLL SAVINGS PLAN

Form FH-121 (4-67)

UNITED STATES GOVERNMENT

# *Memorandum*

Klaboe ✓

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
BUREAU OF PUBLIC ROADS
477 Cottage St. NE. - Salem OR 97301

DATE: June 11, 1968

In reply refer to: 08-35-EC

TO : Mr. Forrest Cooper, State Highway Engineer
Salem, Oregon

FROM for Brooks
R. E. Simpson, Division Engineer
Salem, Oregon

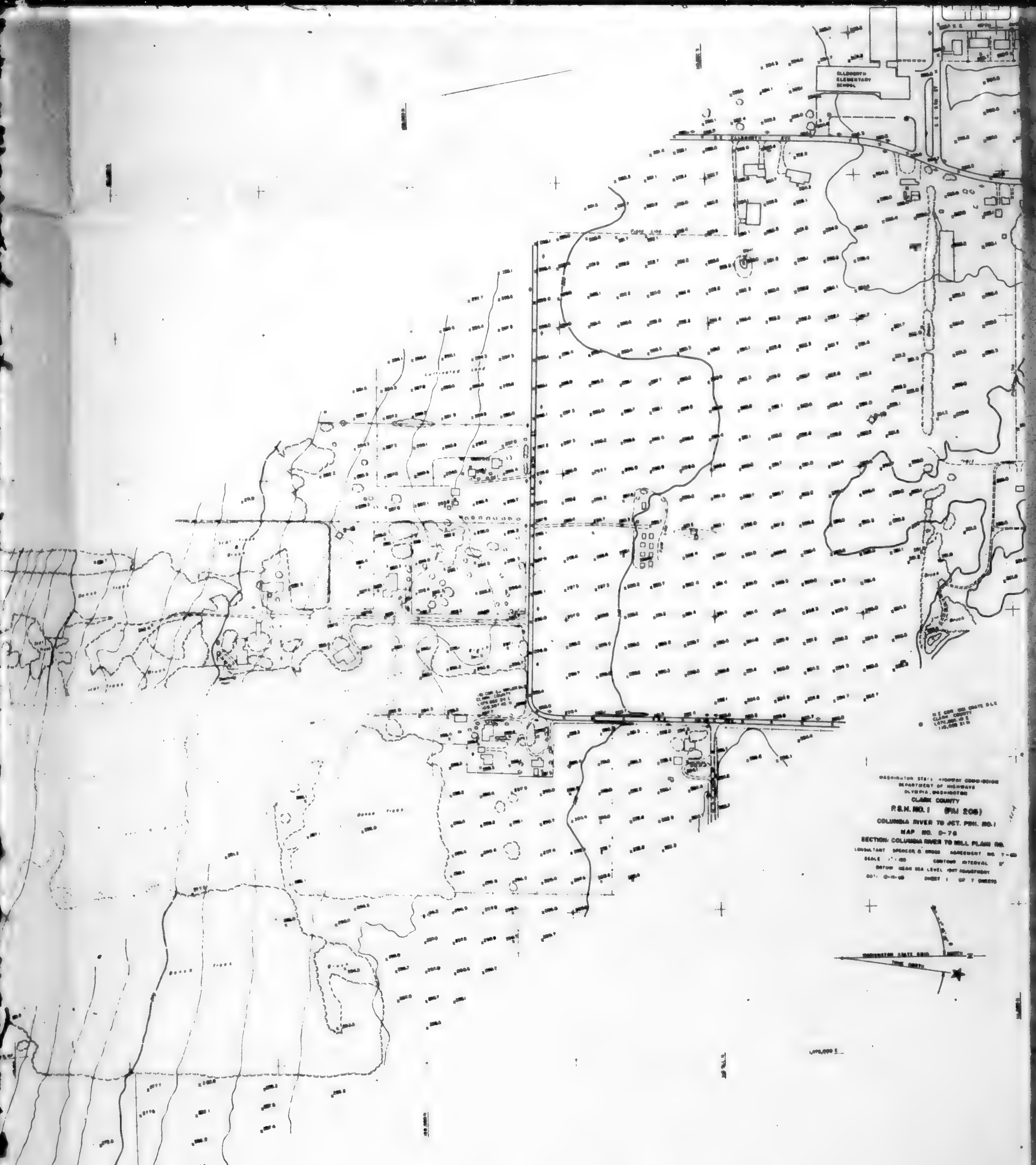
SUBJECT: Oregon Project I-205-7(2)301
Lake Road - Washington State Line
Columbia River Crossing

We concur that Interstate participation may be obtained for the dredged fill construction for the highway northerly of N.E. Columbia Blvd. to the Columbia River, as requested by Mr. Klaboe's June 6 letter.

It is suggested this work be programmed at an early date to permit development of an agreement and method of payment.

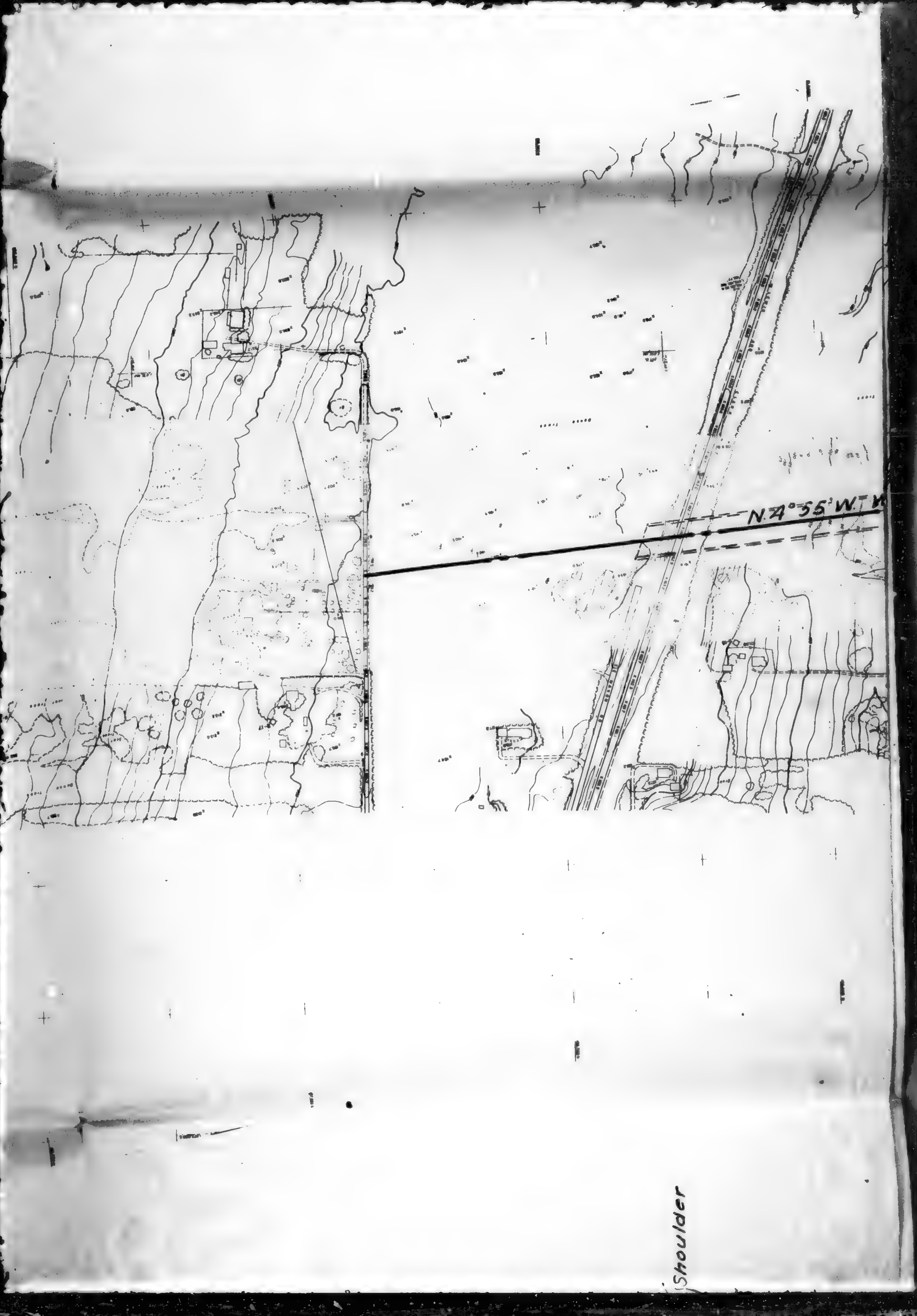
RECEIVED
JUN 12 1968
OFFICE OF
STATE HIGHWAY ENGINEER

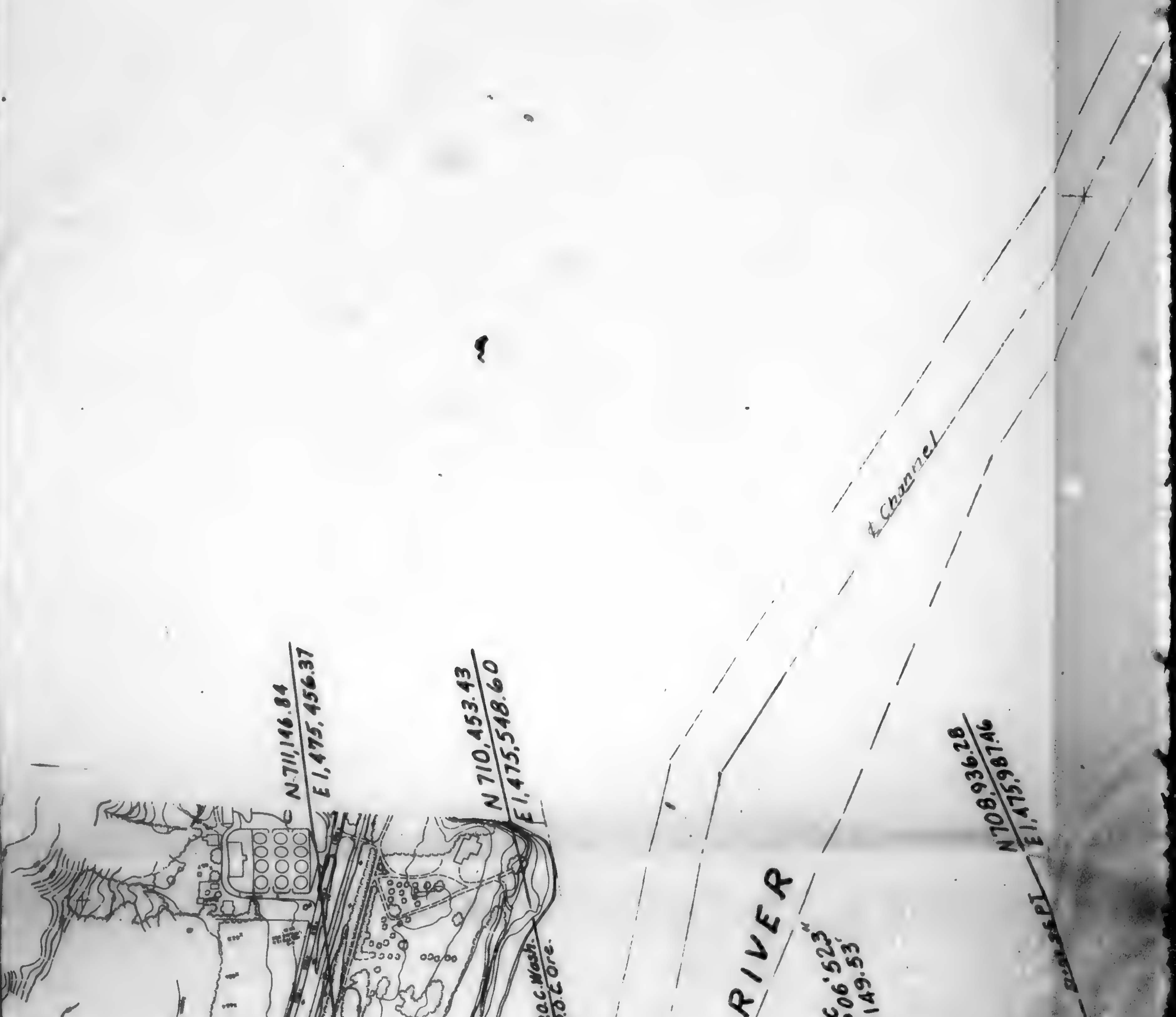
BUY U.S. SAVINGS BONDS REGULARLY ON THE PAYROLL SAVINGS PLAN

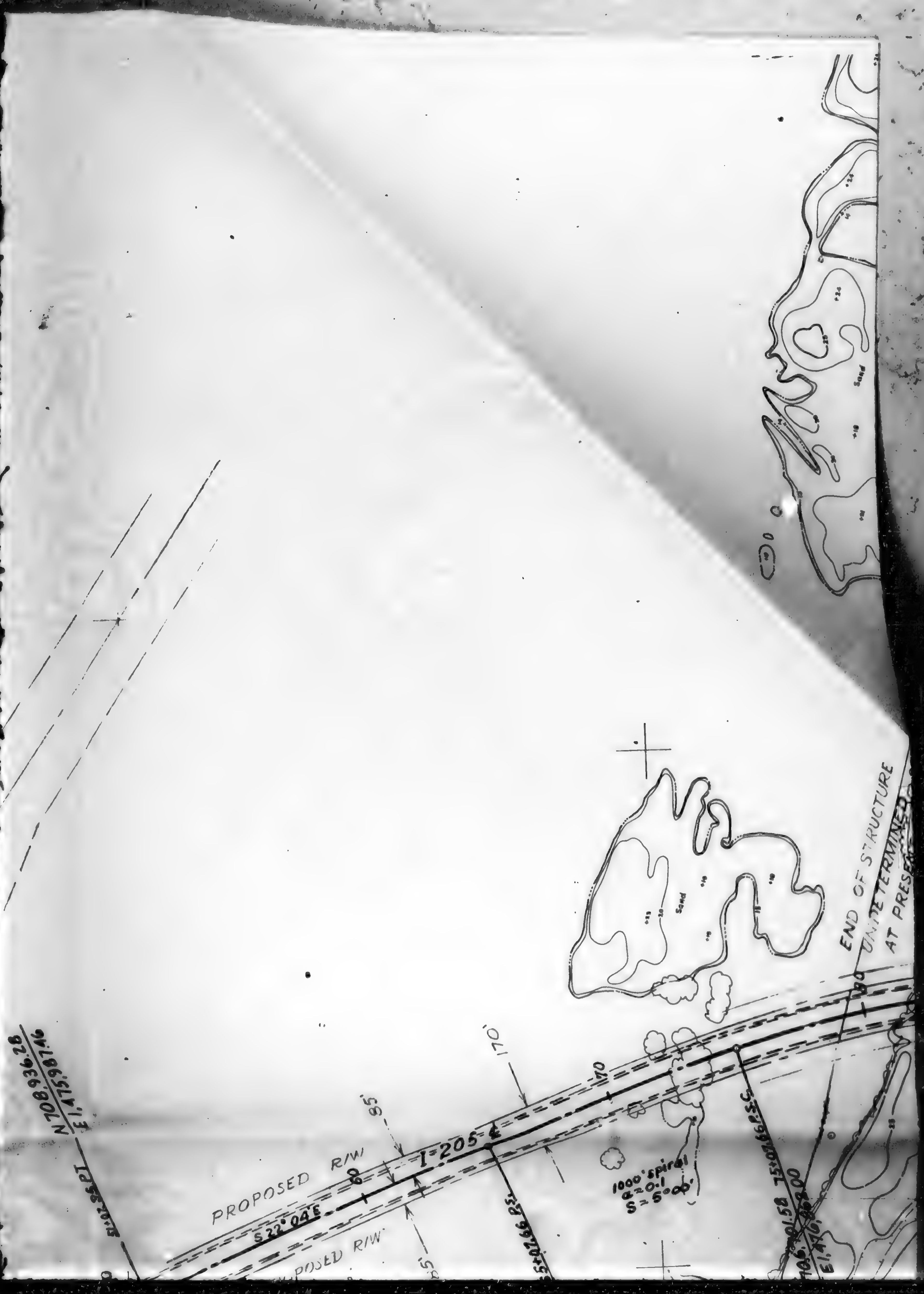


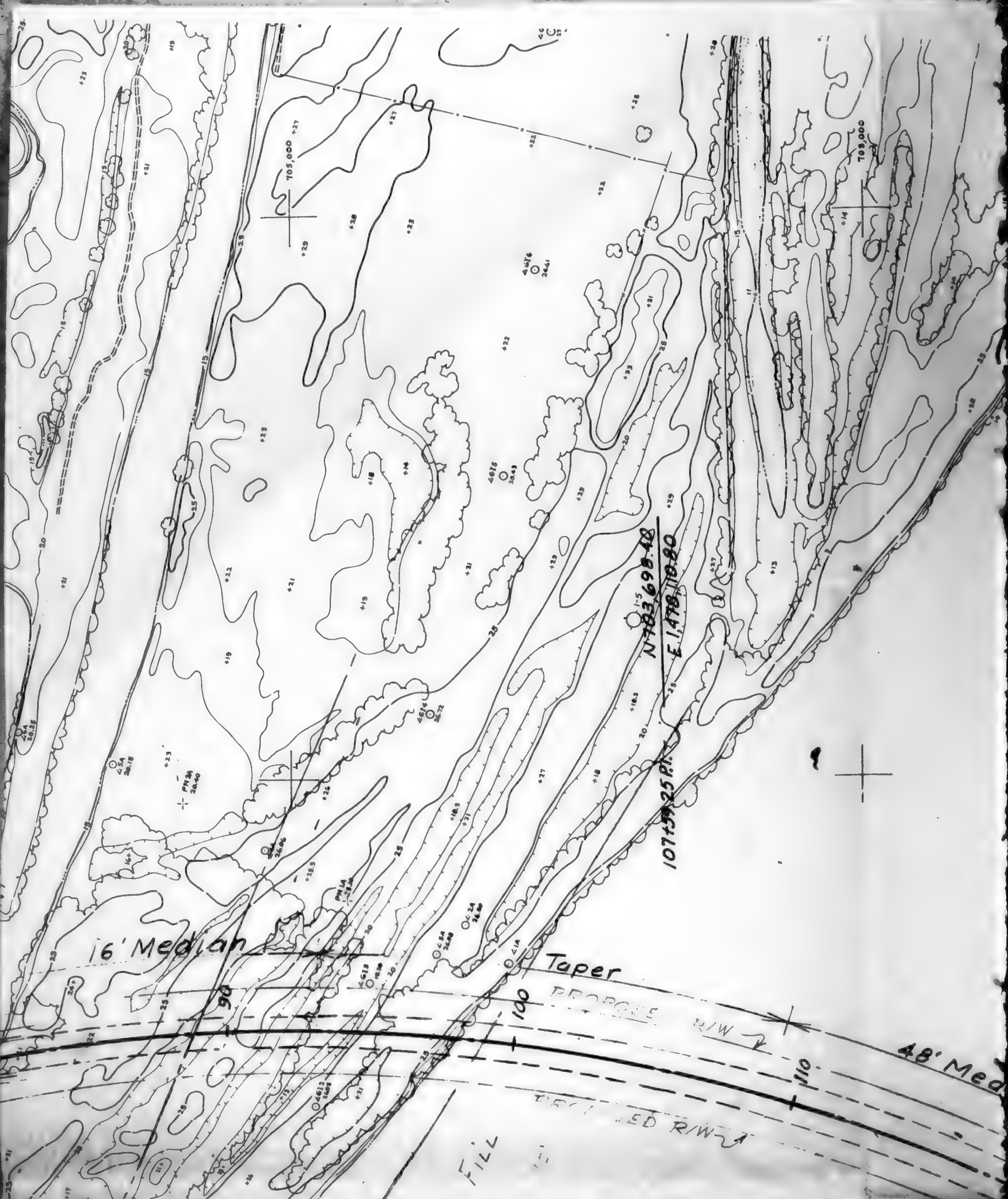
WASHINGTON STATE HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS
OLYMPIA, WASHINGTON
CLARK COUNTY
P.S.H. NO. 1 (FAI 205)
COLUMBIA RIVER TO JCT. PSH. NO. 1
MAP NO. D-76
SECTION: COLUMBIA RIVER TO MILL PLAIN RD.
CONSULTANT SPENCER & [illegible] AGREEMENT NO. Y-[illegible]
SCALE 1"=100' CONTOUR INTERVAL 2'
DATUM MEAN SEA LEVEL 1947 ADJUSTMENT
DATE [illegible] SHEET 1 OF 7 SHEETS

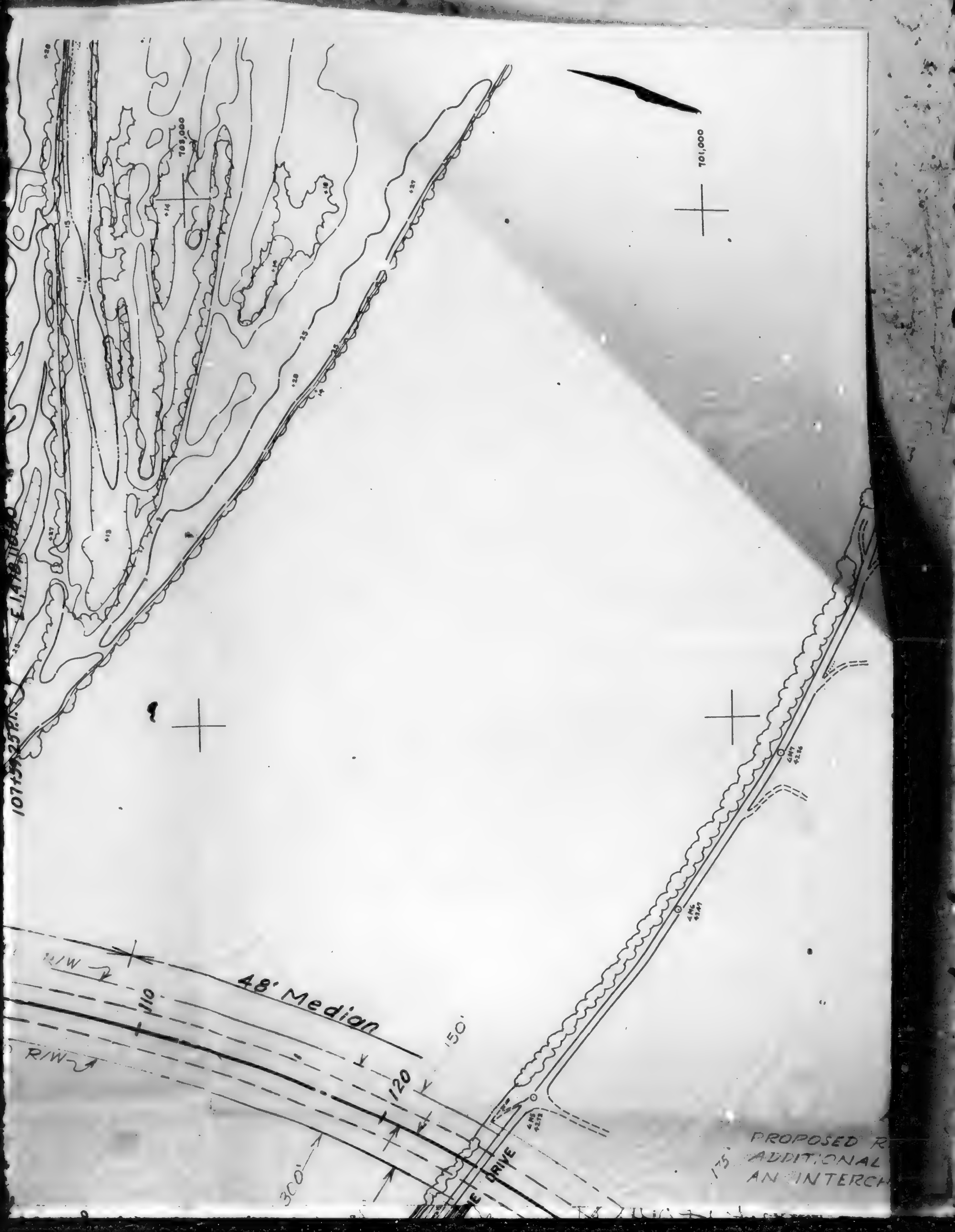
ELLSWORTH ELEMENTARY SCHOOL
CLARK COUNTY

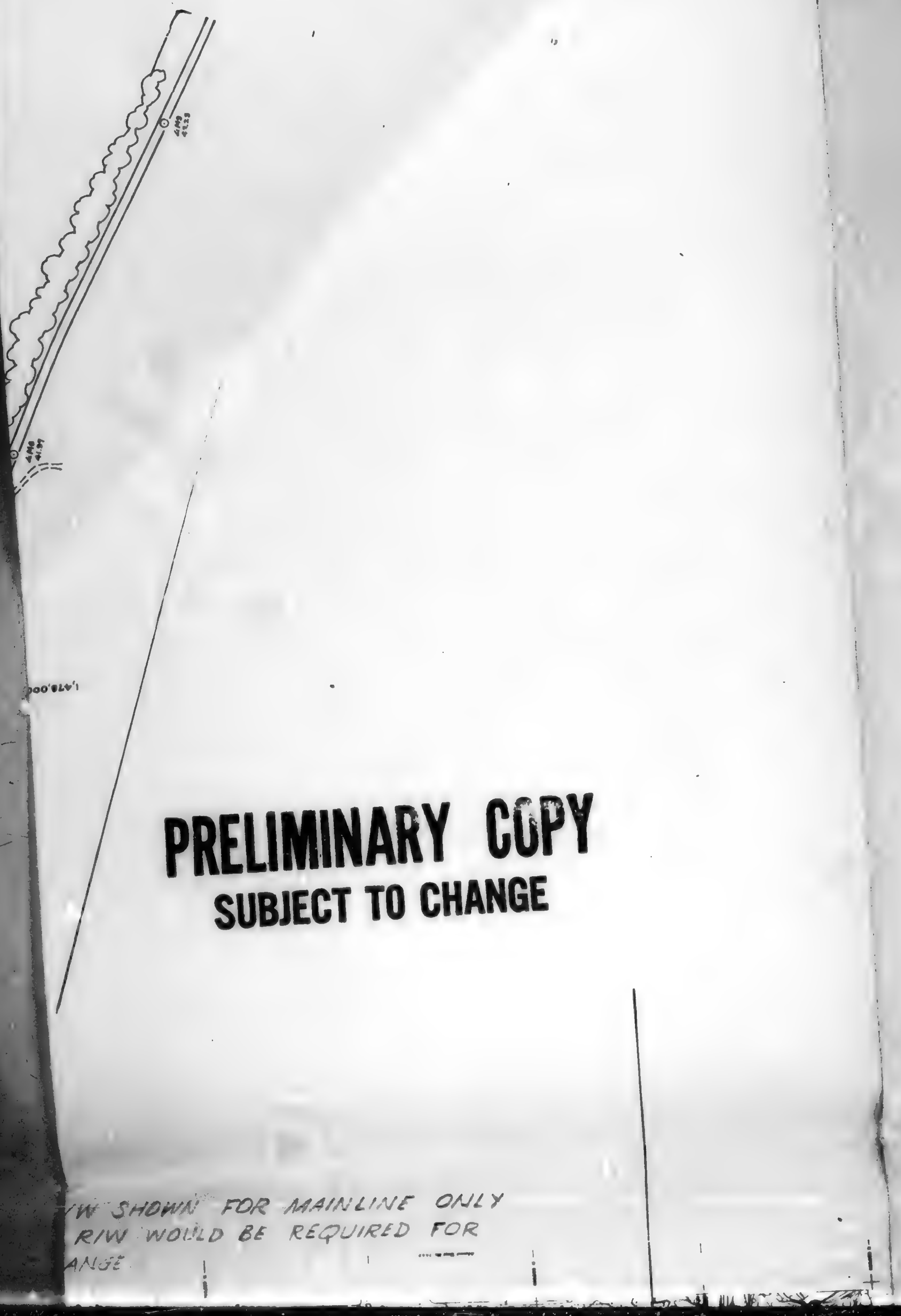

N.4°55'W.
Shoulder


N.711,146.84
E 1,475,456.37
N 710,453.43
E 1,475,548.60
46.87 P.O.C. Wash.
25.18 P.O.C. Ore.
Wash.
℄ Channel
RIVER
0°45'C, 06'52.3"
Δ=17°06'
T=1149.53
N 708,936.28
E 1,475,987.46
PI


N 708,936.28
E 1,475,987.46
PT
PROPOSED R/W
S 22° 04' E
60
85'
I-205 ℄
170'
70
80
PROPOSED R/W
85'
P.S.
P.S.C.
1000' spiral
a = 0.1
S = 5°00'
E 1,476,
END OF STRUCTURE
UNDETERMINED
AT PRESE
Sand
Sand

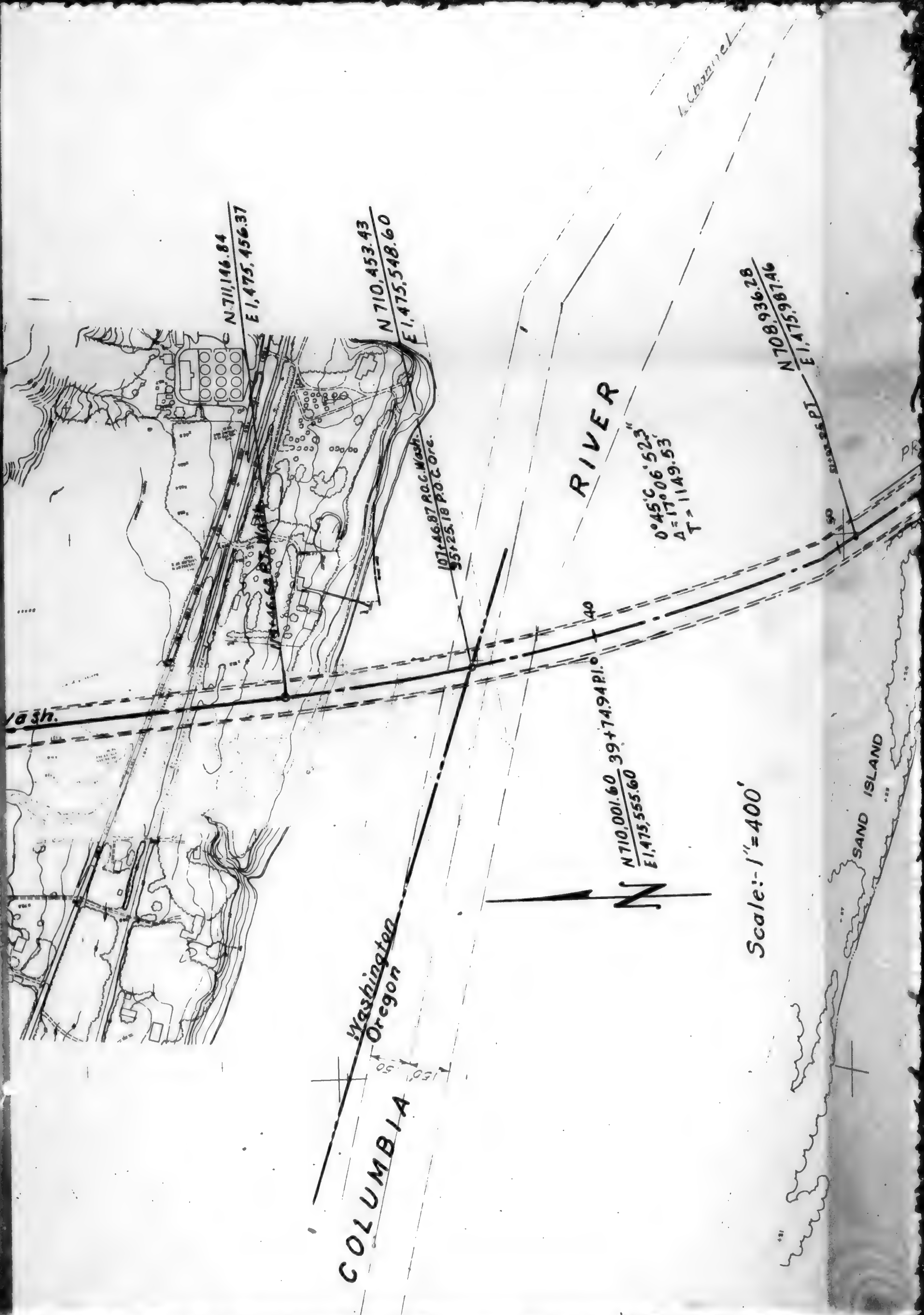

105,000
N 183,698.48
E 1,478,110.80
107+59.25 P.I.
16' Median
Taper
PROPOSED R/W
90
100
110
48' Med
PROPOSED R/W
FILL
FINED.
300'


703,000
701,000
107+51.25 P.I.
E1,418,1040
R/W
48' Median
110
R/W
120
150'
300'
DRIVE
175
PROPOSED R
ADDITIONAL
AN INTERCH

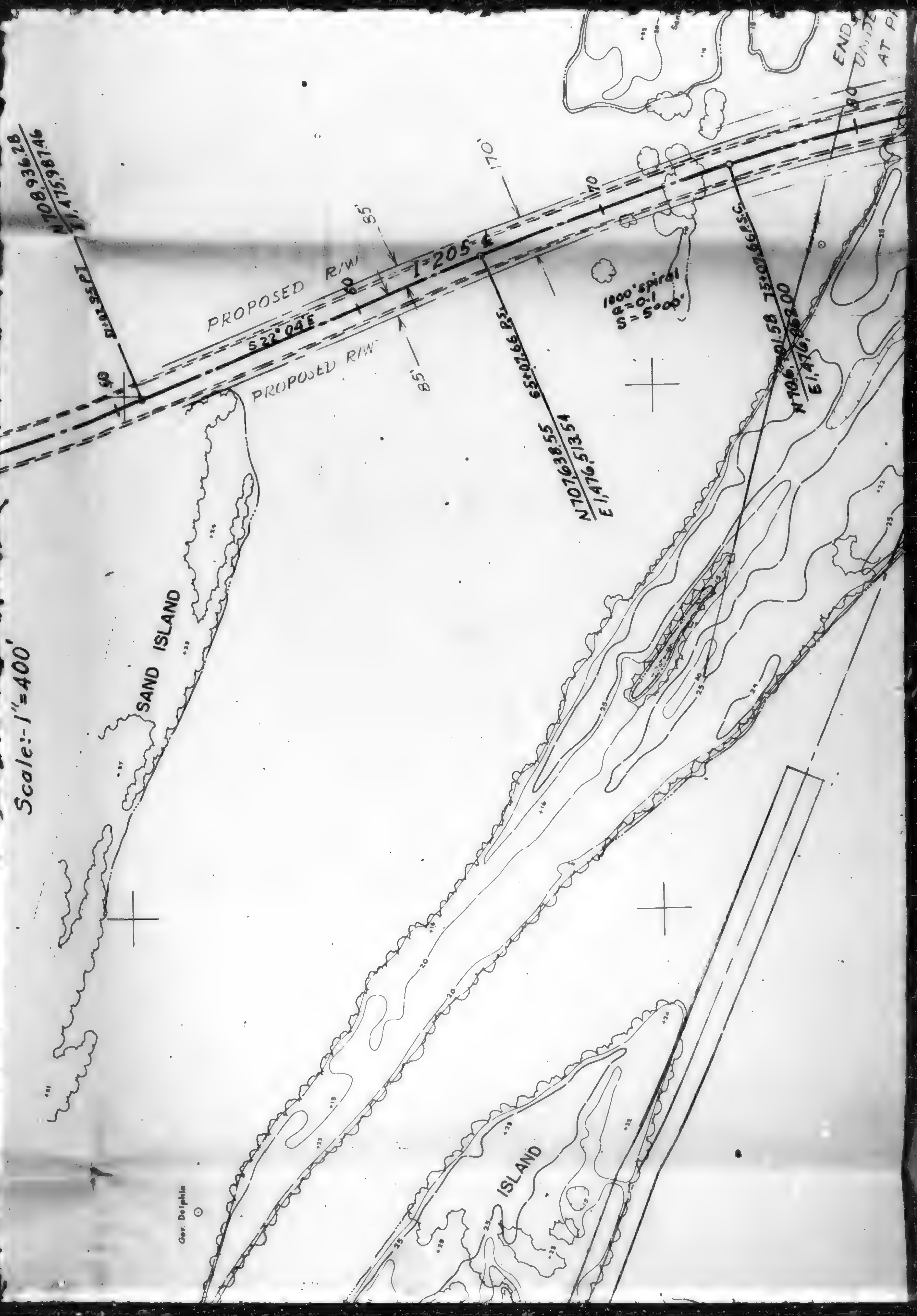

4M9
42.23
4M8
41.97
1,478,000

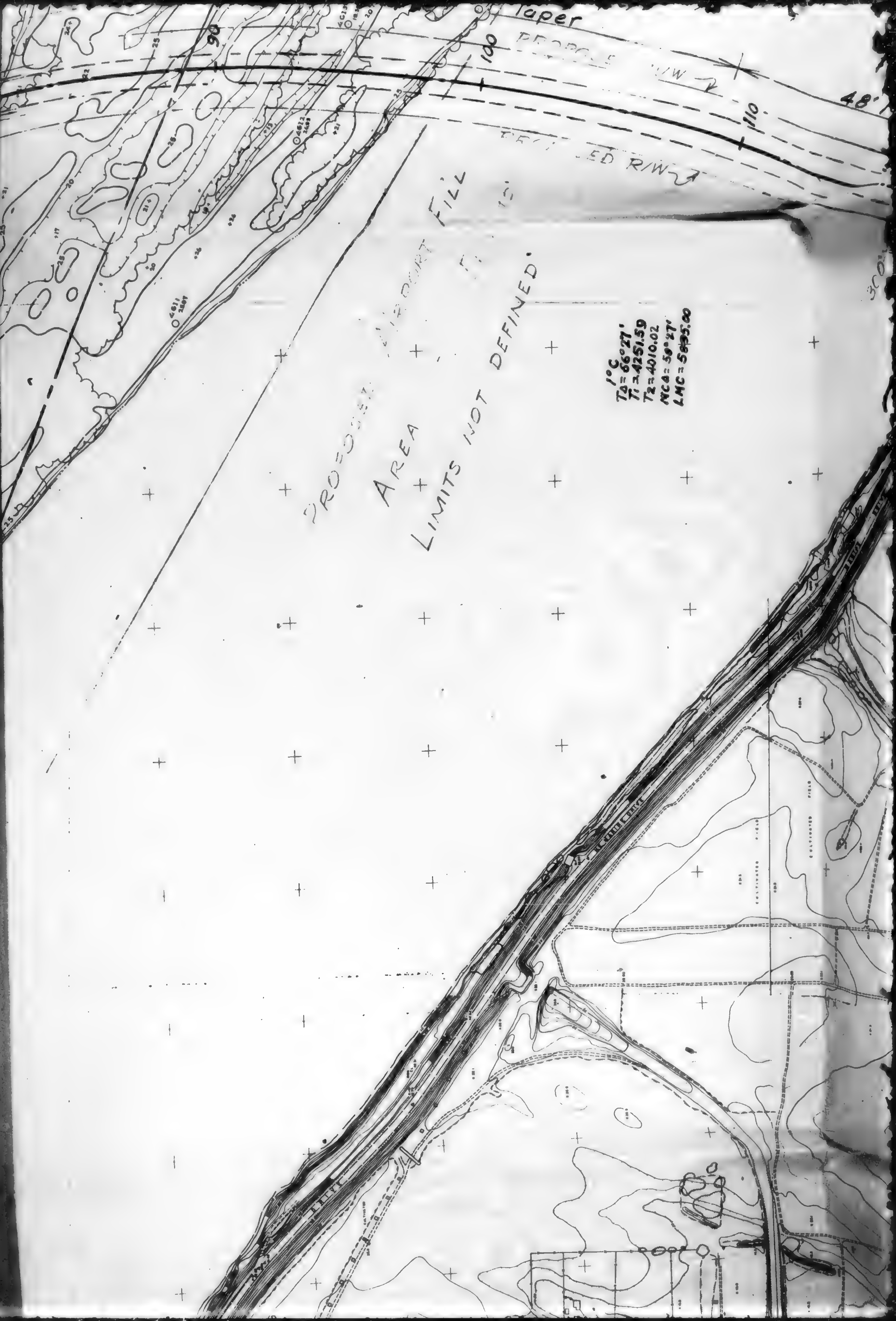
PRELIMINARY COPY
SUBJECT TO CHANGE

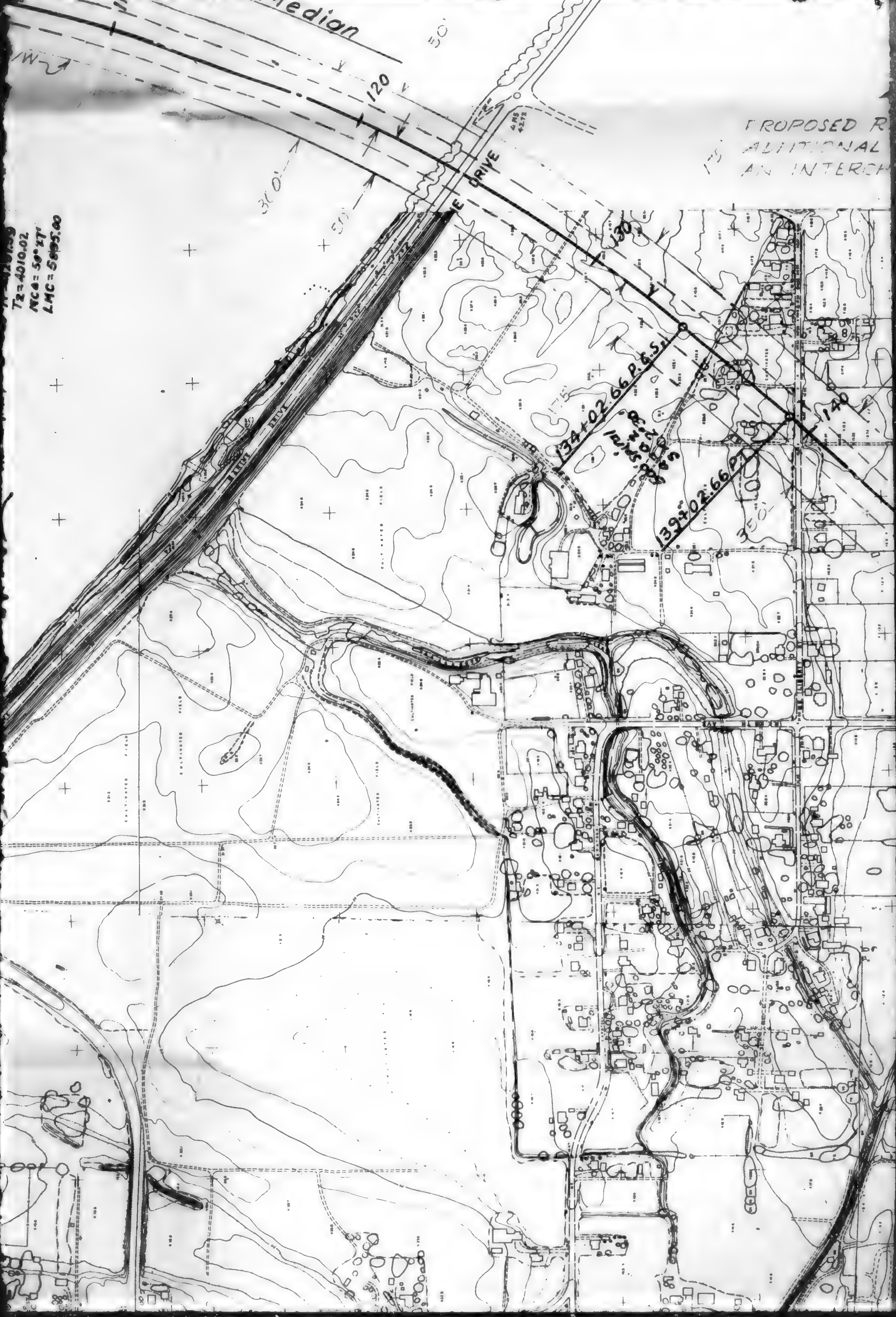
W SHOWN FOR MAINLINE ONLY
RIW WOULD BE REQUIRED FOR
ANGE



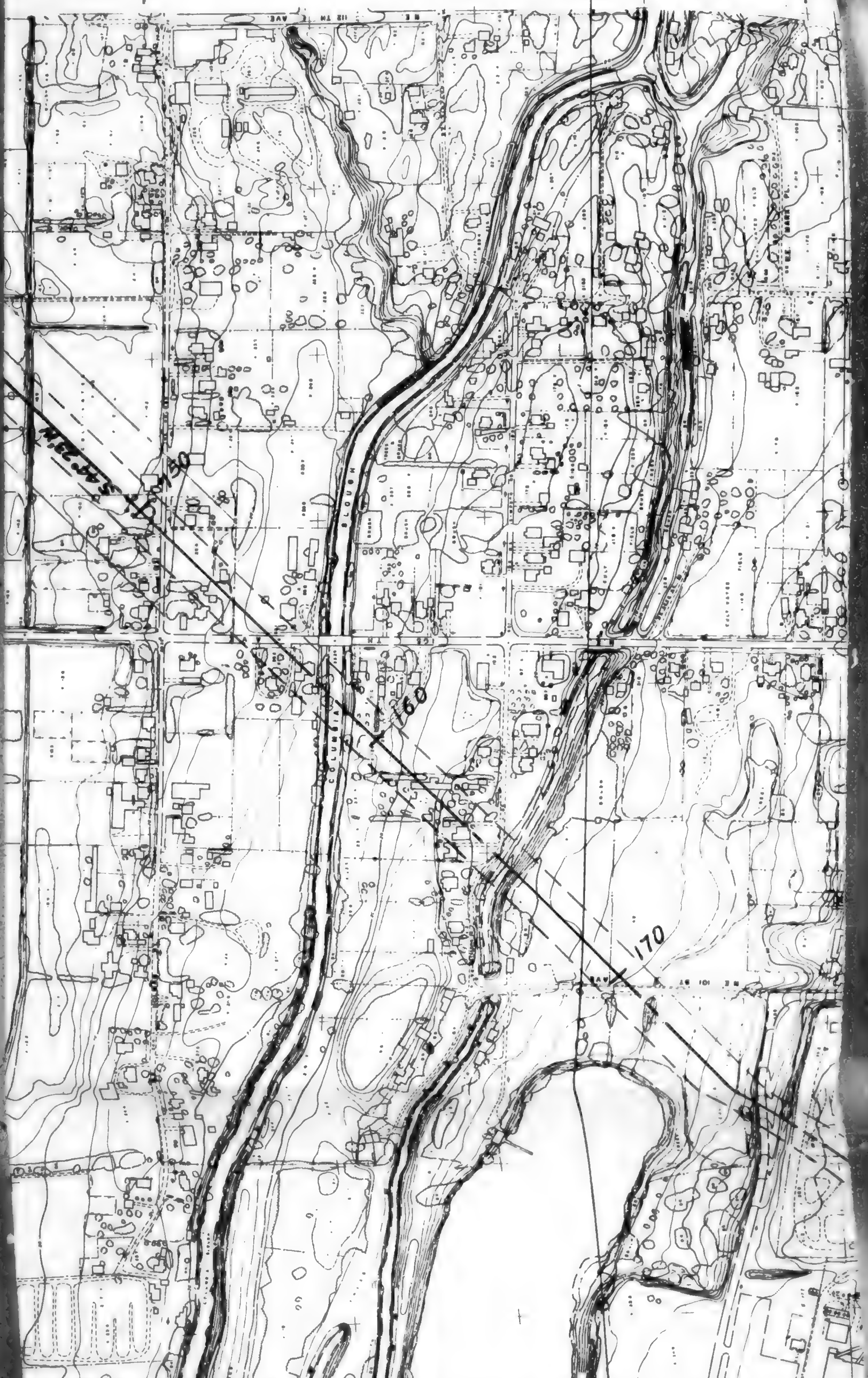
℄ Channel
N 711,146.84
E 1,475,456.37
N 710,453.43
E 1,475,548.60
N 708,936.28
E 1,475,987.46
RIVER
0°45'C
Δ=17°06'52.3"
T=1149.53
107+46.87 P.O.C. Wash.
35+25.18 P.O.C. Ore.
17+46.64 P.T. Wash.
40
50
39+74.94 P.I.
N 710,001.60
E 1,475,555.60
Scale:- 1"=400'
SAND ISLAND
Washington
Oregon
COLUMBIA
150'
50'
Wash.
P.T.
PR


Scale:- 1"=400'
N 708,936.28
E 1,475,987.46
PROPOSED R/W
PROPOSED R/W
S 22° 04' E
I-205 ℄
50
60
70
80
85'
85'
170'
55+07.66 P.S.
N 707,638.55
E 1,476,513.54
1000' spiral
a = 0.1
S = 5°00'
75+07.66 P.S.C.
E 1,476,862.00
SAND ISLAND
ISLAND
Gov. Dolphin
END
UNDE
AT P
25
22
20
19
24
23
28
27
21
16

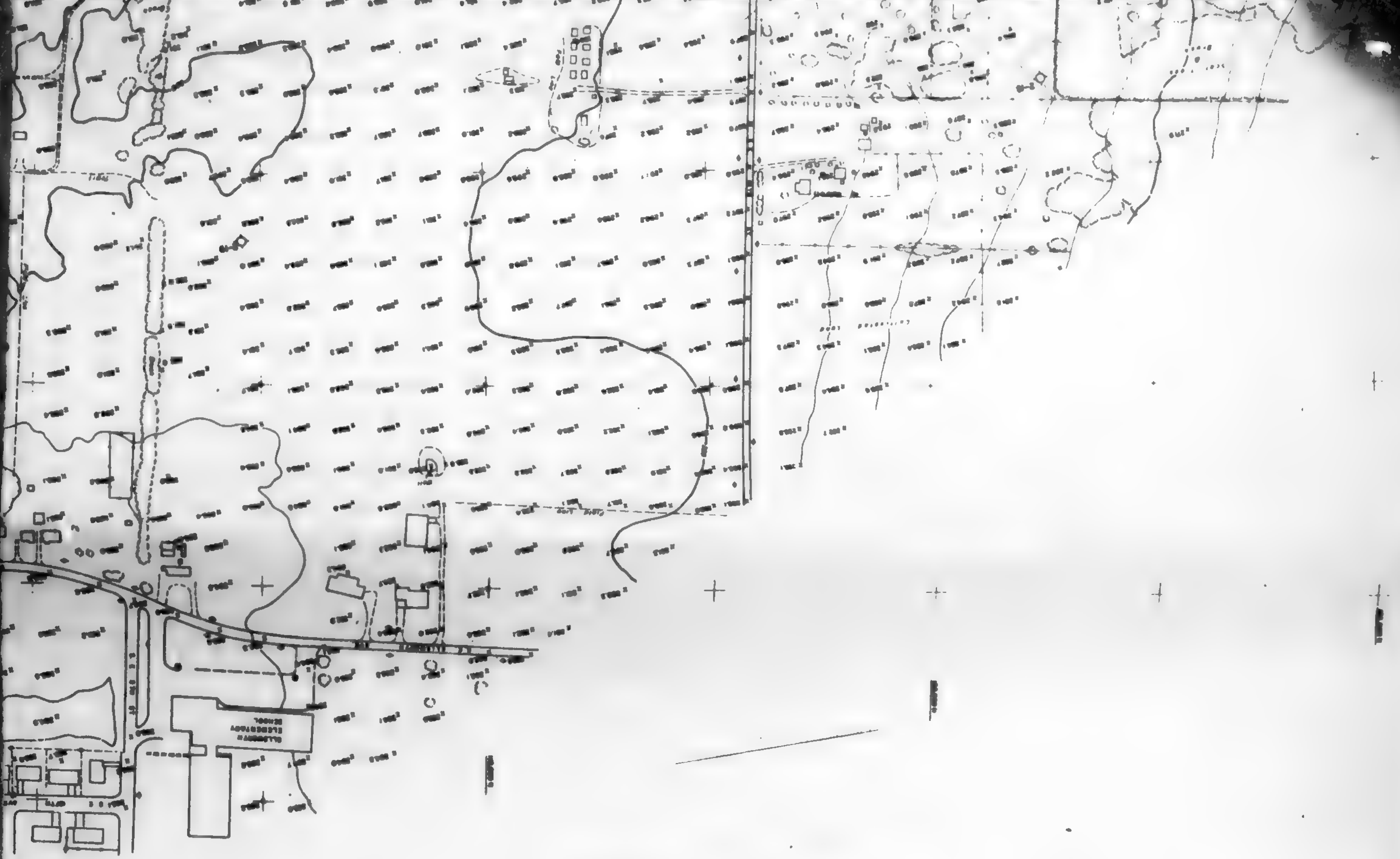

Taper
90
100
110
PROPOSED R/W
48'
PROPOSED R/W
PROPOSED AIRPORT FILL AREA
LIMITS NOT DEFINED.
1°C
TΔ= 66°27'
T1=4251.59
T2=4010.02
MCΔ=56°27'
LMC=5695.00
300'

Median
R/W
120
130
140
300'
50'
350'
DRIVE
T2=4010.02
MCA=50°27'
LMC=5095.00
PROPOSED R
ADDITIONAL
AN INTERCH
134+02.66 P.C.S.
139+02.66 P.T.
175'

/W SHOWN FOR MAINLINE ONLY
R/W WOULD BE REQUIRED FOR
AMPS



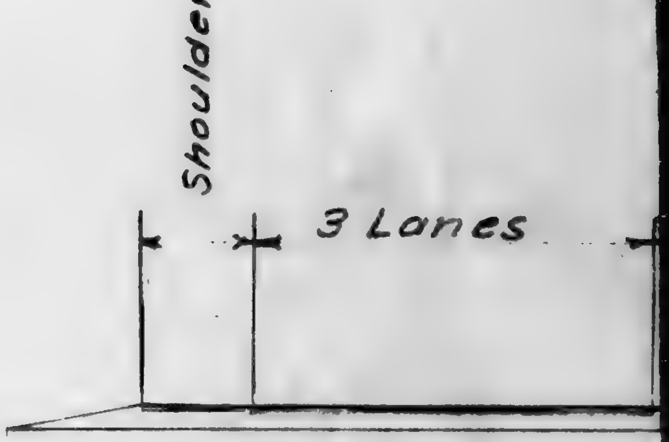
S 46°23' W
150
160
170
SLOUGH
COLUMBIA
AVE



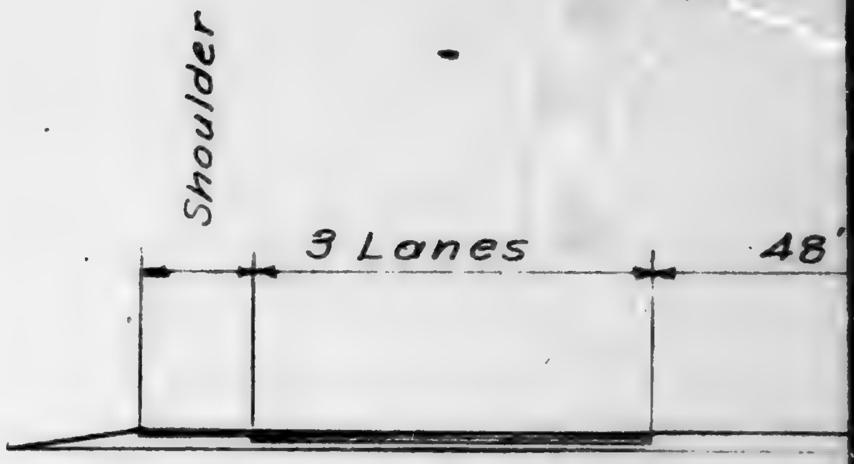
**PRELIMINARY COPY**
**SUBJECT TO CHANGE**

OREGON STATE HIGHWAY DEPT.
URBAN DESIGN OFFICE

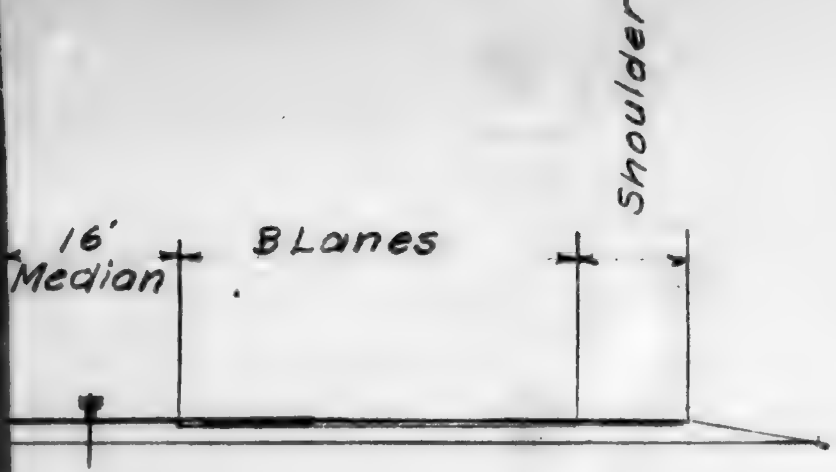
Map coordinates shown are ORE. No. ZONE
PROJECT: I205 Frwy
SECTION: Columbia River Crossing
STATIONS: Wash. to Ore Scale 1" = 400'
DATE: Feb 23, '68 BY: Bundy


Shoulder
3 Lanes

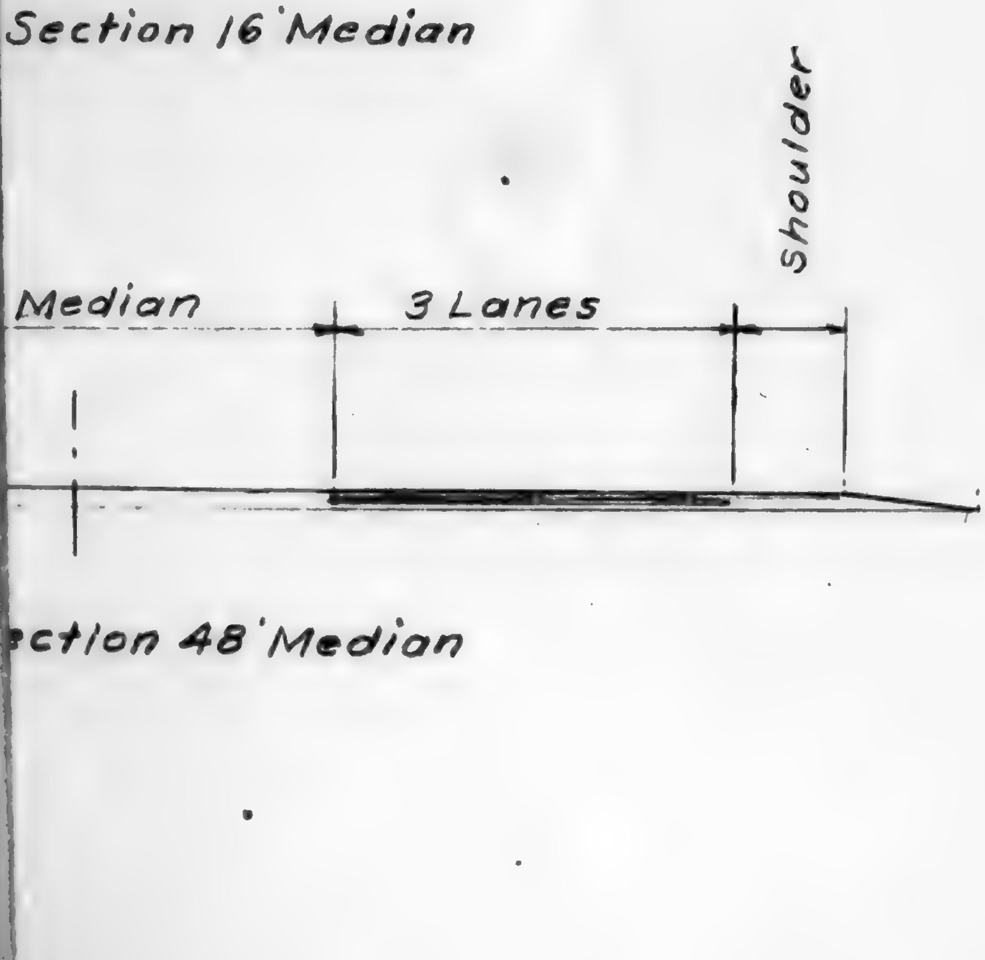
Typical


Shoulder
3 Lanes
48'

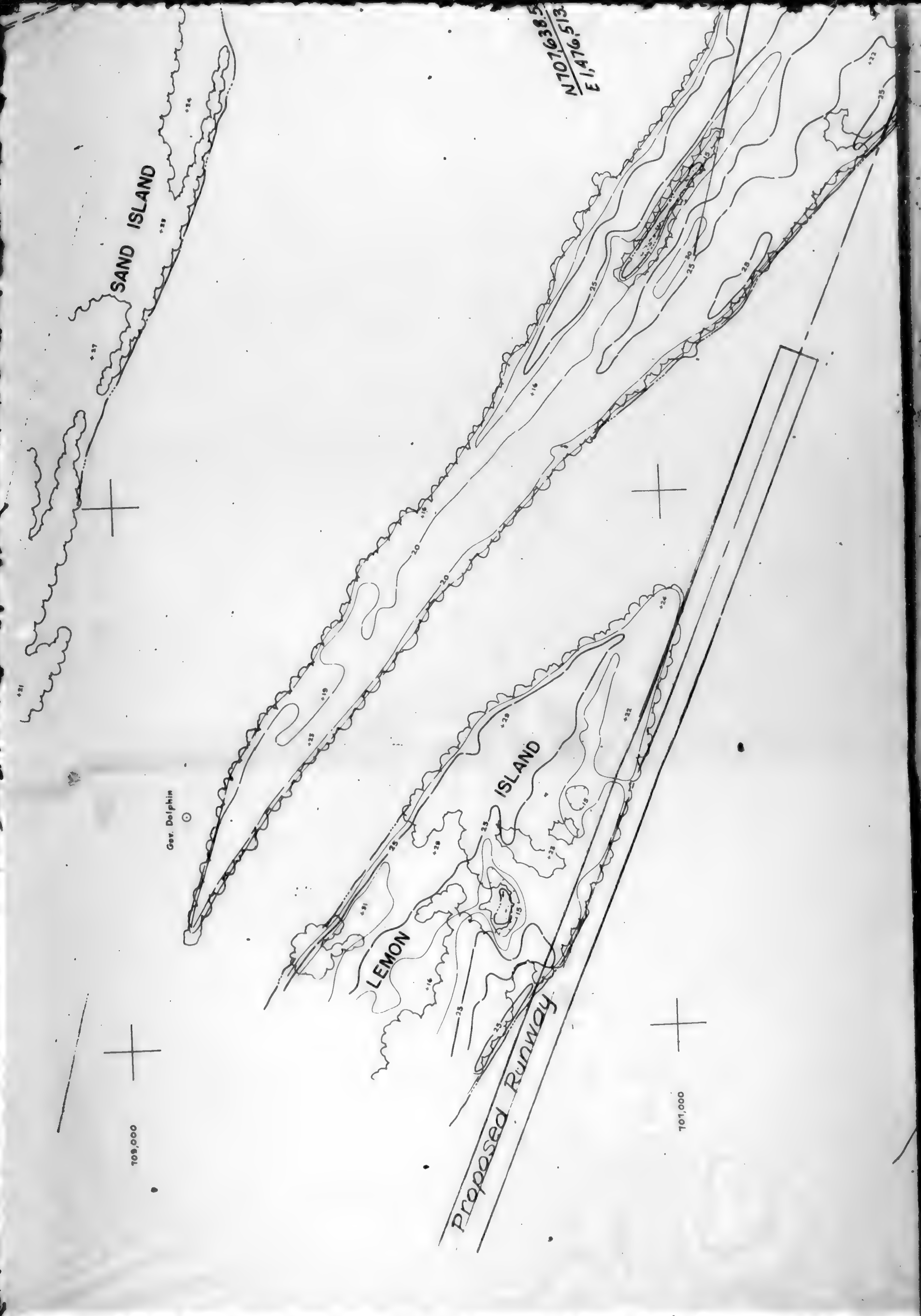
Typical Se


16'
Median
8 Lanes
Shoulder

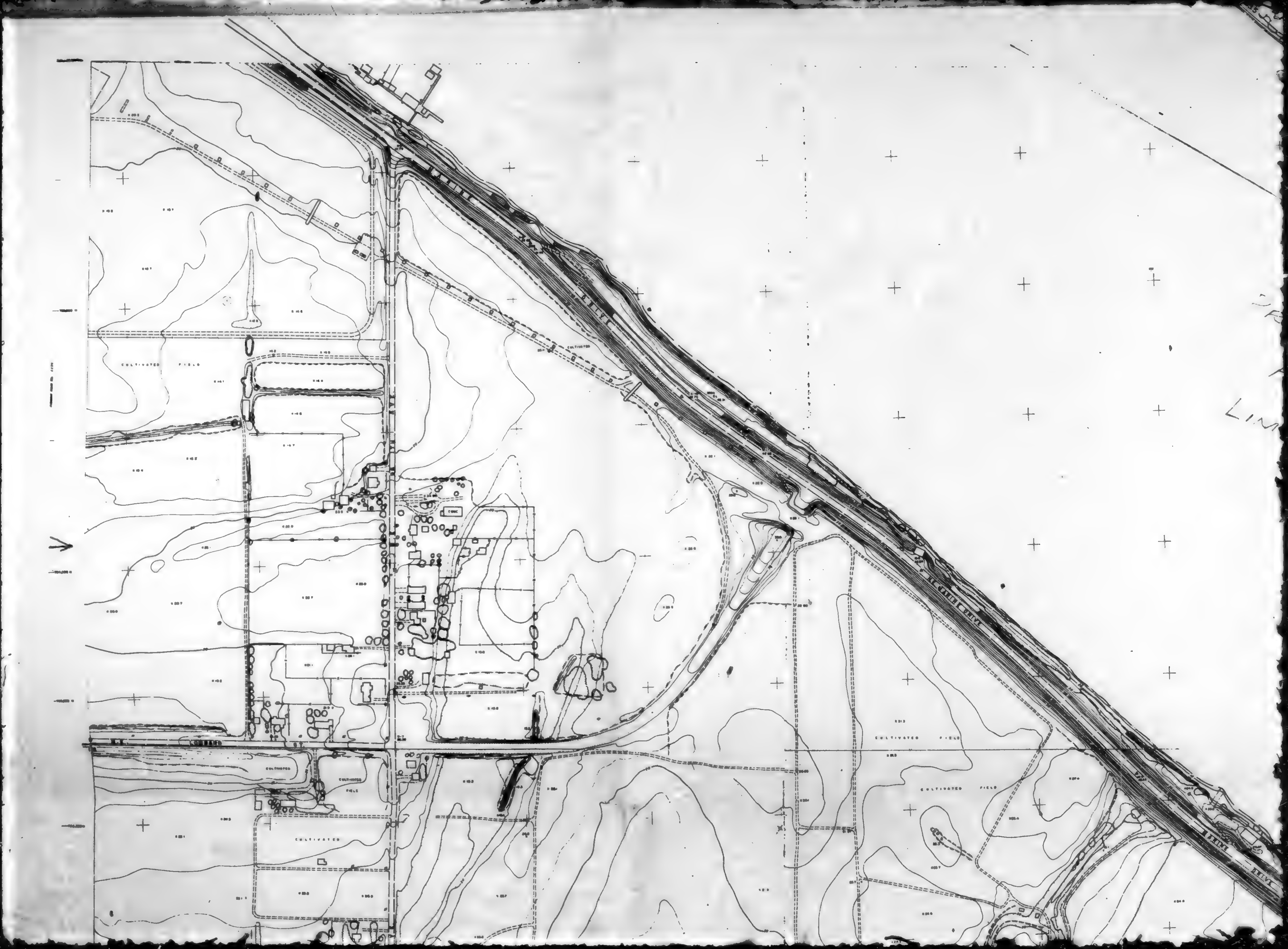
Section 16' Median

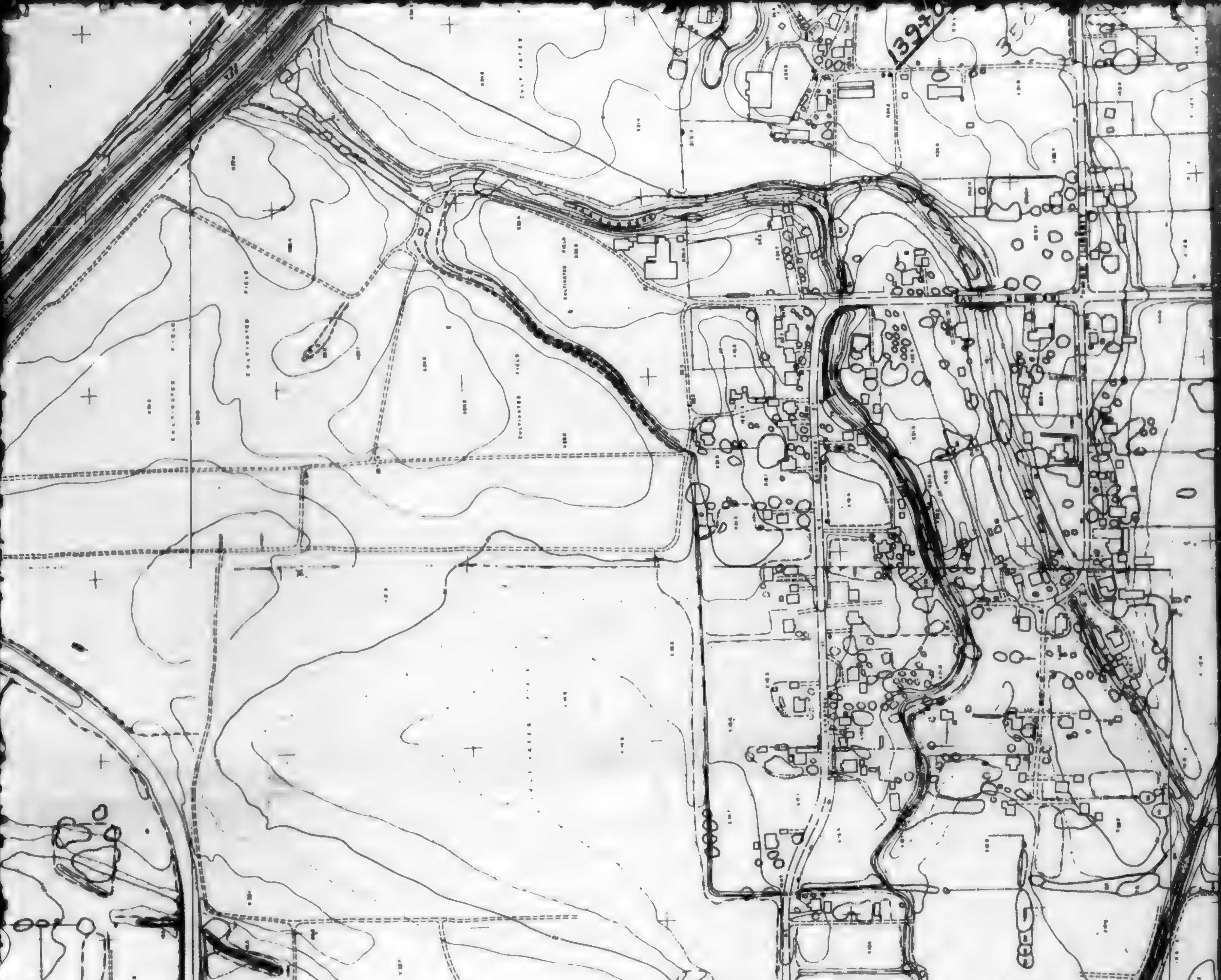

Median
3 Lanes
Shoulder

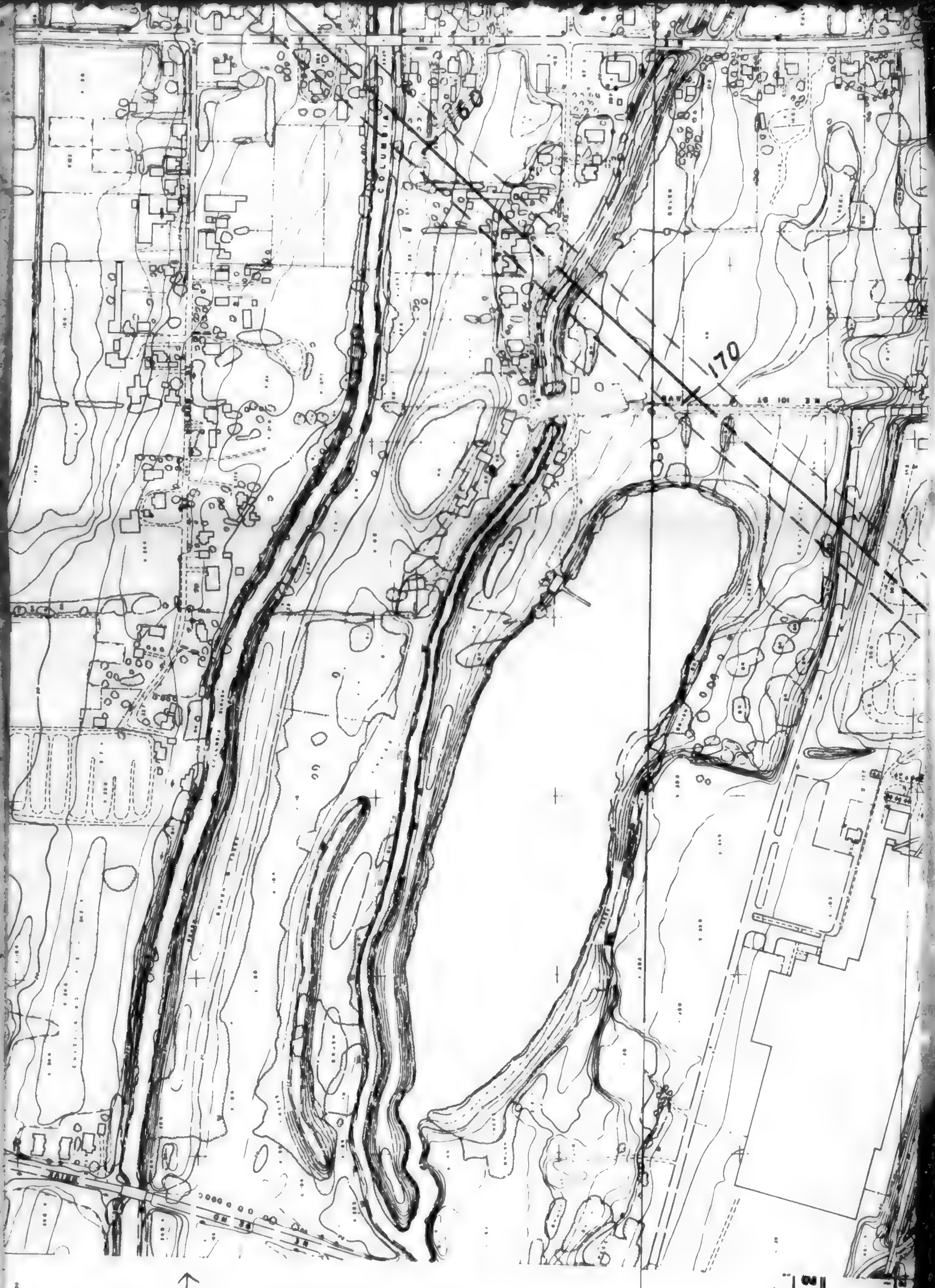
ection 48' Median

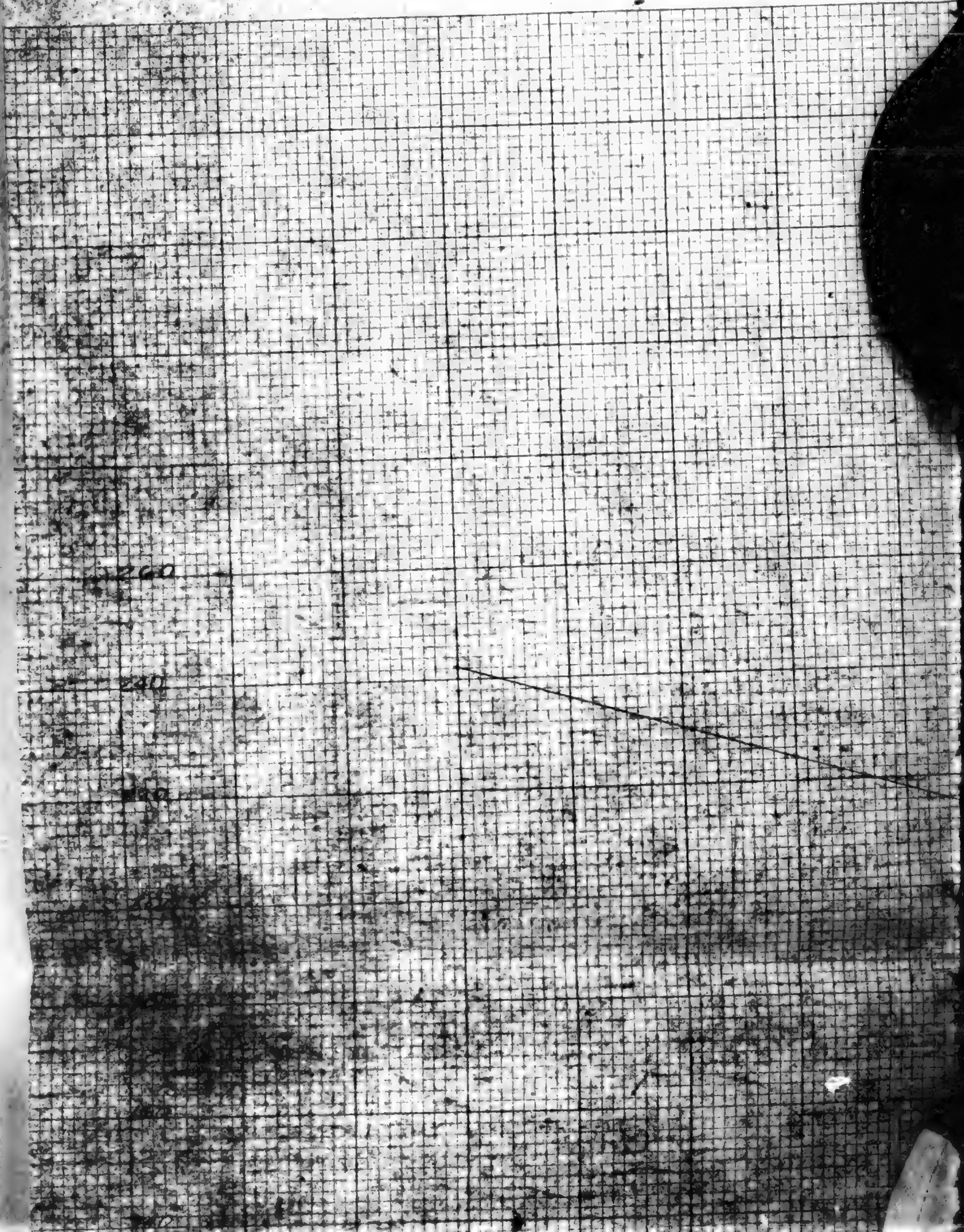


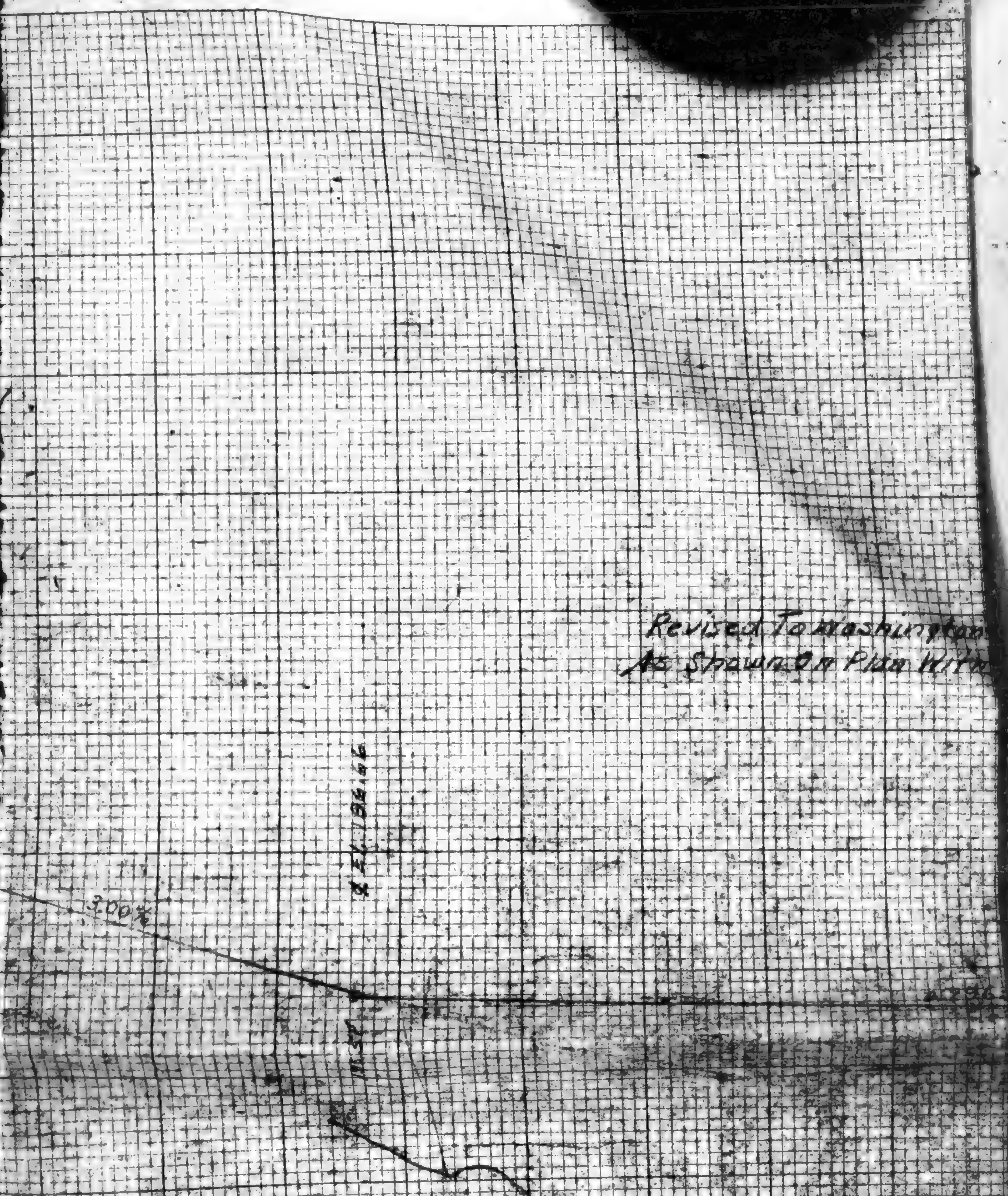
SAND ISLAND
LEMON ISLAND
Proposed Runway
Gov. Dolphin
N 707,638.5
E 1,476,513.
709,000
707,000
25
20
15

CULTIVATED FIELD
CULTIVATED
CULTIVATED FIELD
CULTIVATED FIELD
CULTIVATED
DRIVE
DRIVE

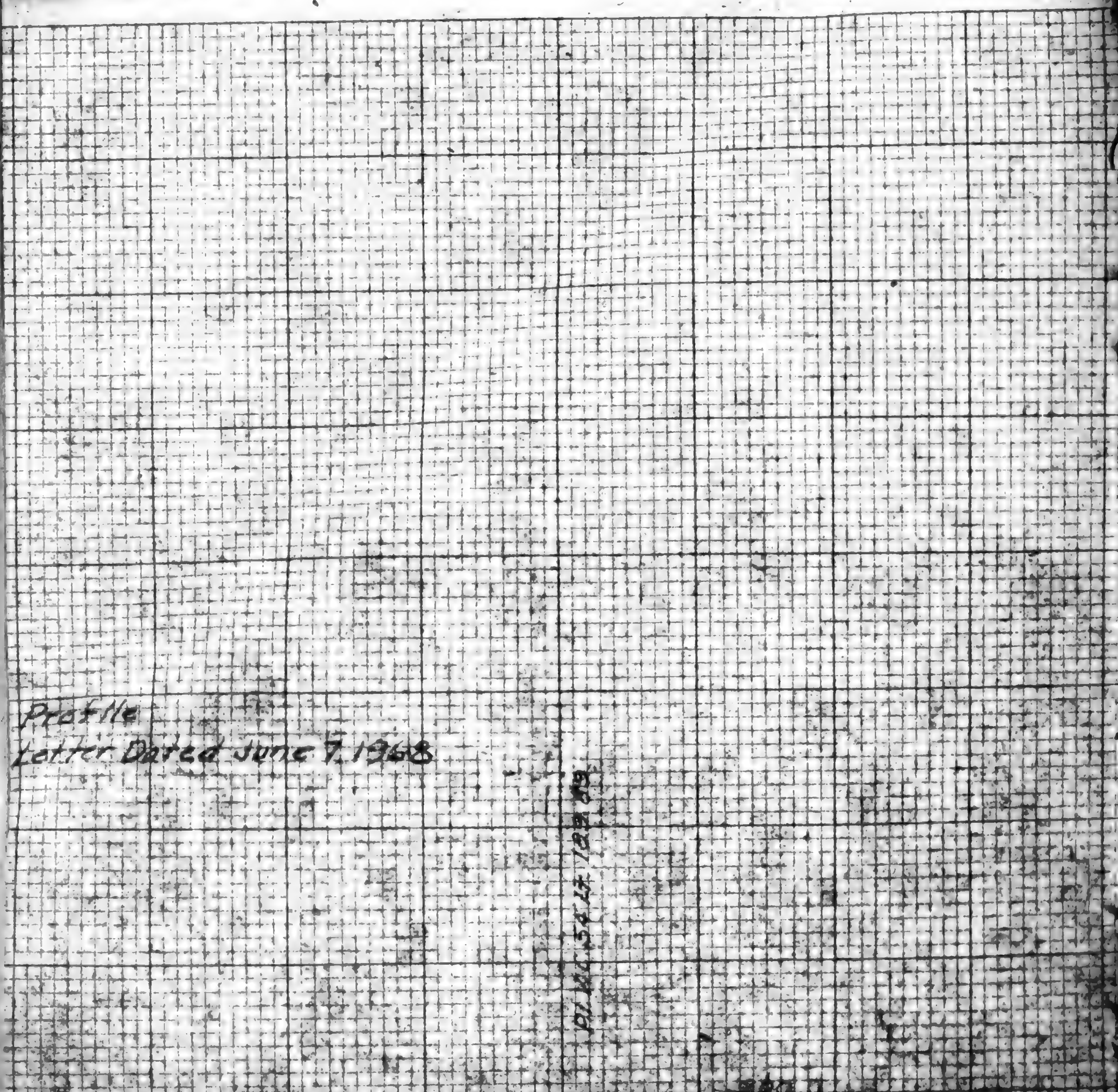

139+0
35
CULTIVATED FIELD
CULTIVATED FIELD
CULTIVATED FIELD


160
170


260
240

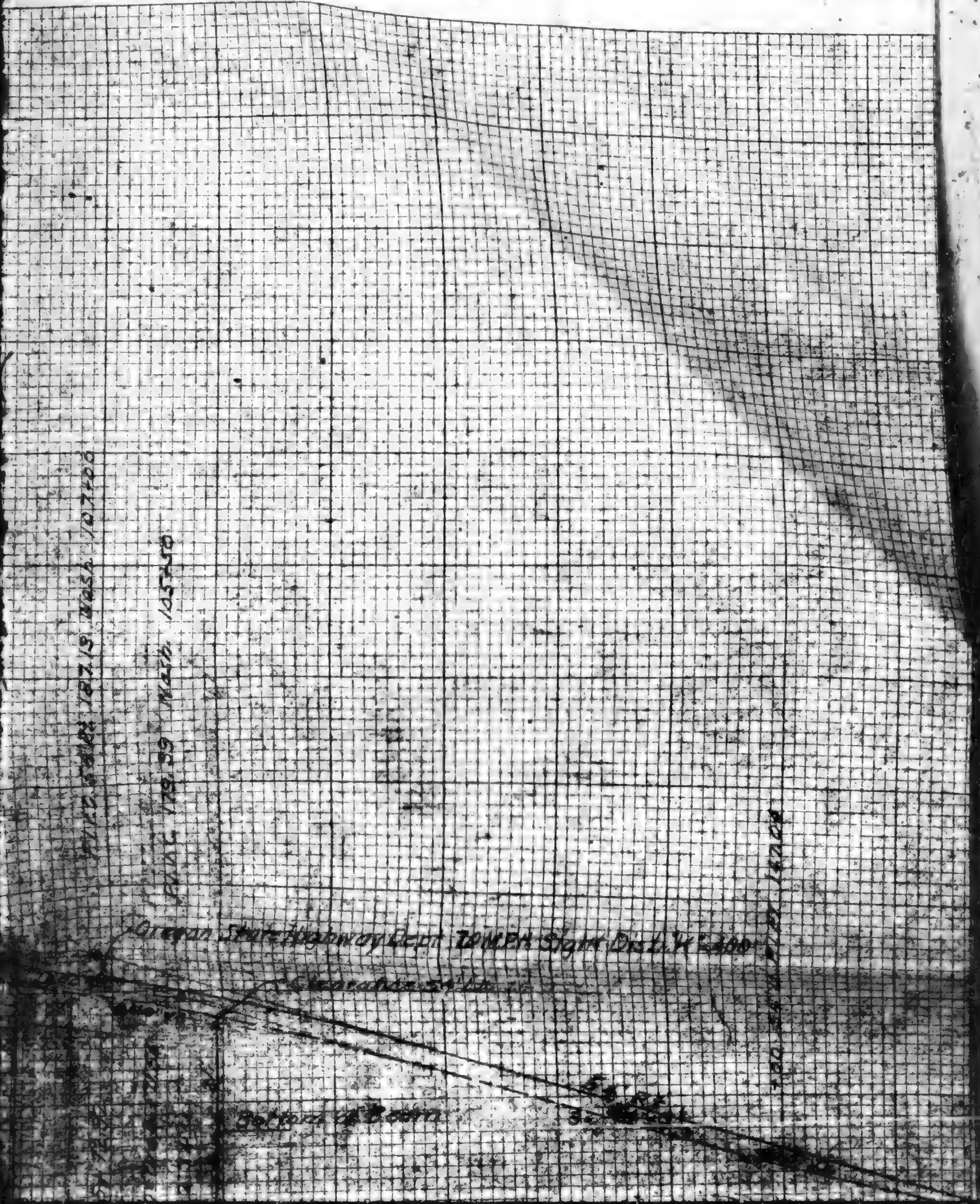

Revised To Washington
As Shown On Plan With
3.00%
℄ EL. 32.46

K+E STANDARD ● 10X10 TO THE



Profile
Letter Dated June 7, 1968

P.I. W.C. 54 Lt 189.89
64 Rt. & Lt.

P.V.C. Sta. 187.19 Elev. 107.00
P.V.C. 179.59 Elev. 105.50
Oregon State Highway Dept. LOWER Sight Dist. H 1400
Clearance 5
Bottom of Beam

K+E STANDARD ⊕ CROSS SECTION
10X10 TO THE INCH

KEUFFEL & ESSER CO.
MADE IN U.S.A.

K+E STANDARD ® CROSS SECTION
10X10 TO THE INCH

KEUFFEL & ESSER CO.
MADE IN U.S.A.

K&E STANDARD ● CROSS SECTION
10X10 TO THE INCH

**PRELIMINARY COPY**
**SUBJECT TO CHANGE**

OREGON STATE HIGHWAY DEPT.
URBAN DESIGN OFFICE
PROFILE
PROJECT: I205 Frwy.
SECTION: Columbia River Crossing
STATIONS: 150+00 Wash. to 180+00 Ore.
DATE: Feb. 23, 1968 BY: AK

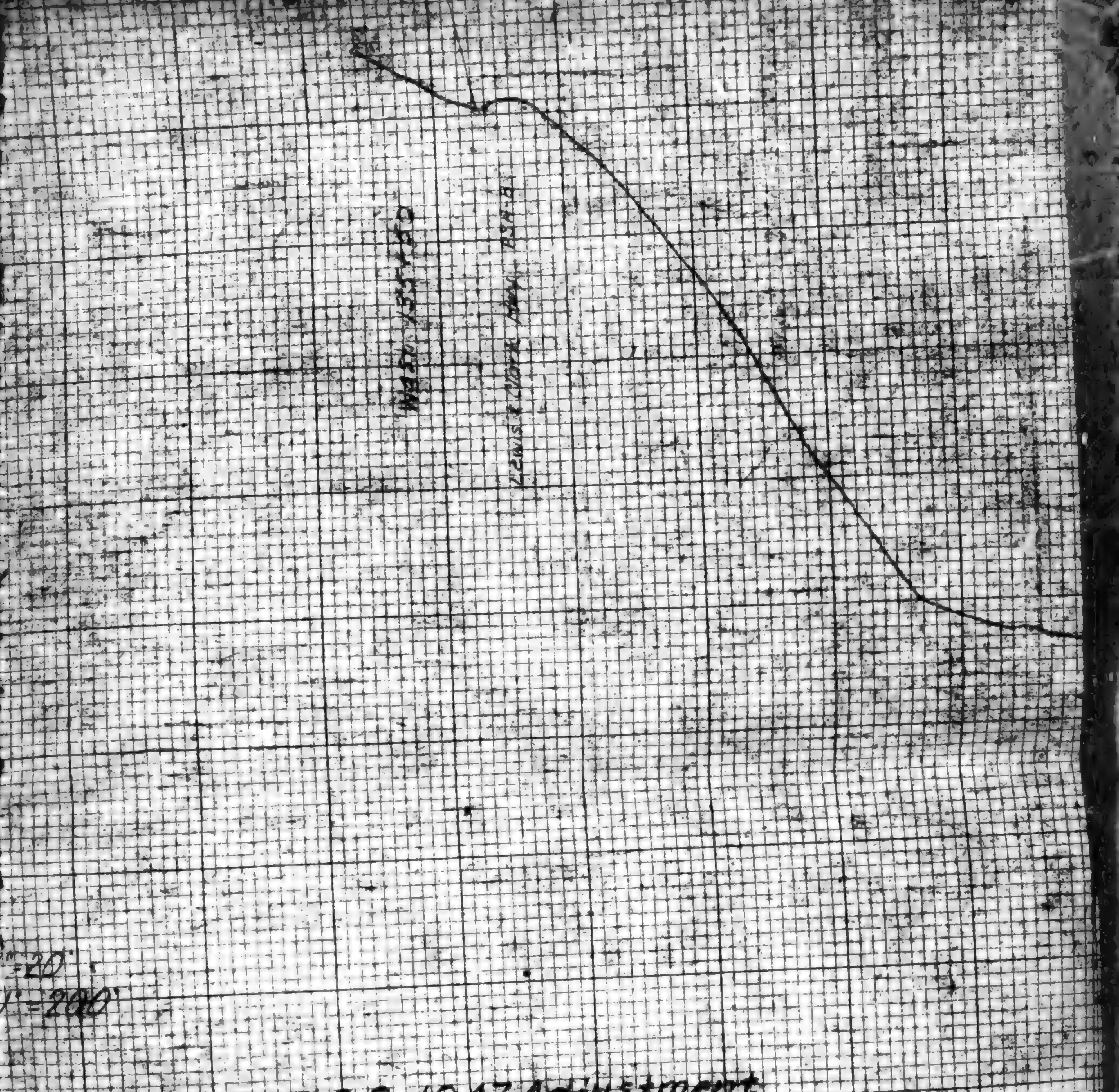
Revised Mar. 27, 1968 from information on channel location obtained from the Corps of Engineers.

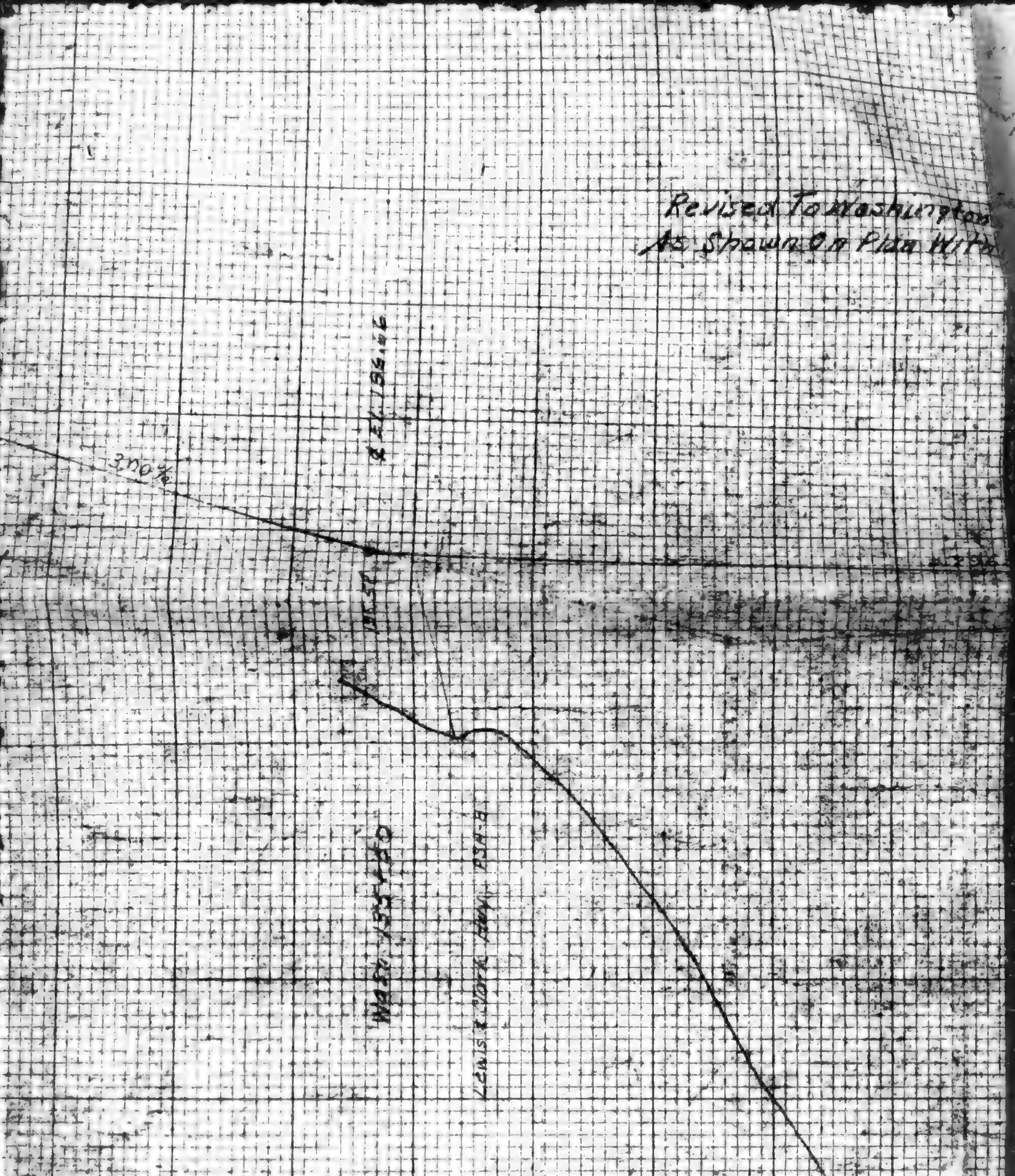
Scale Vert.
Horiz.

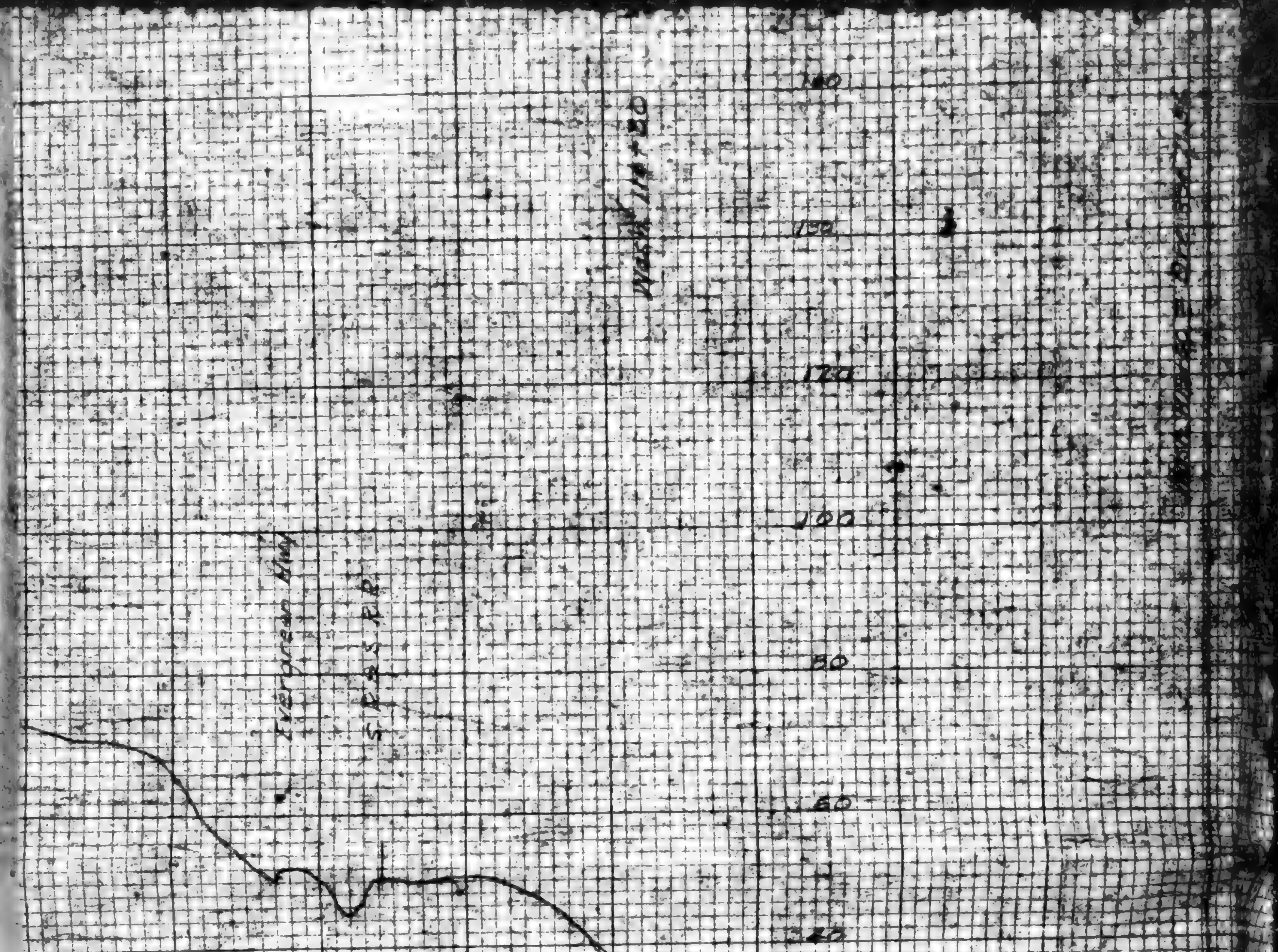
150W

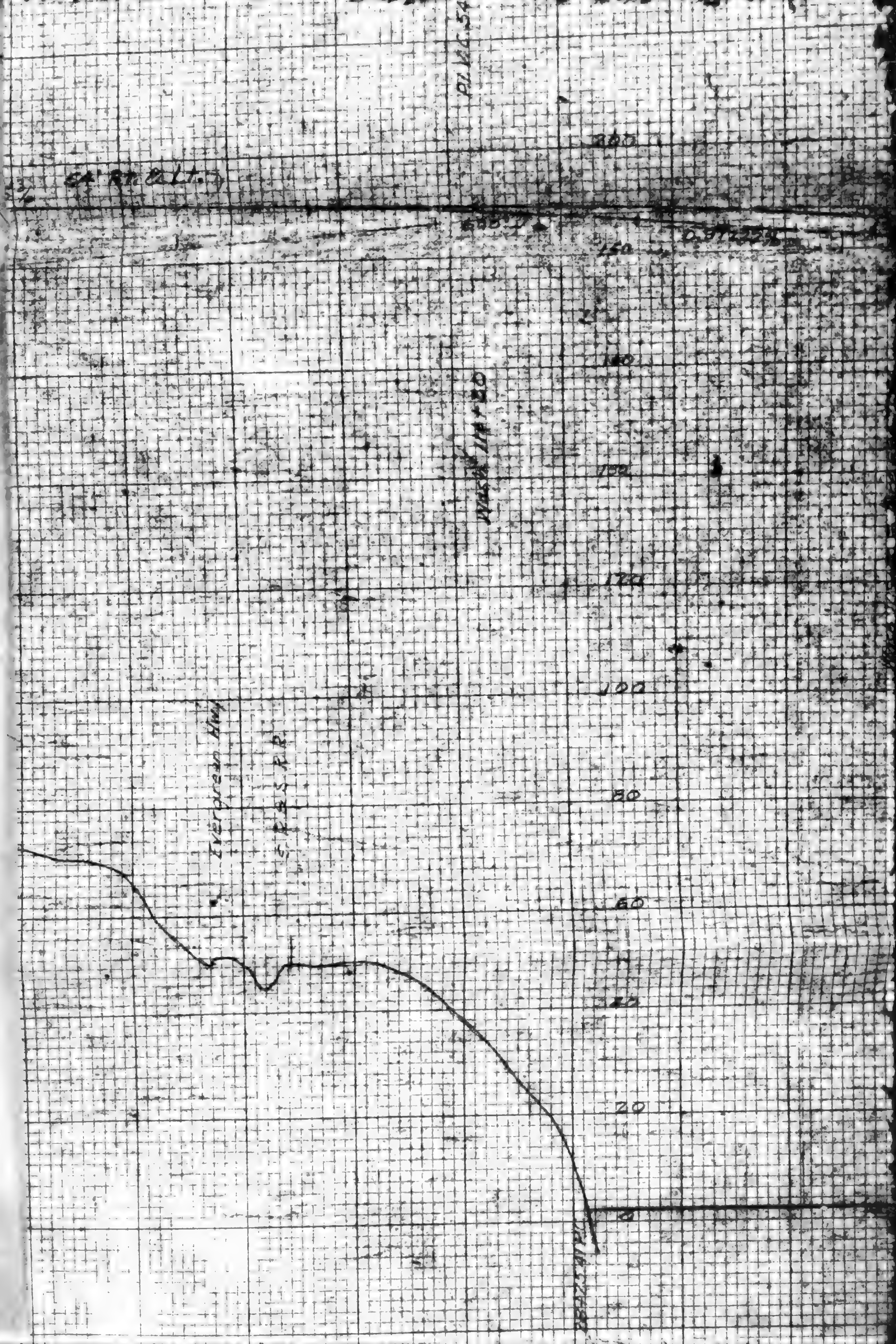
145W

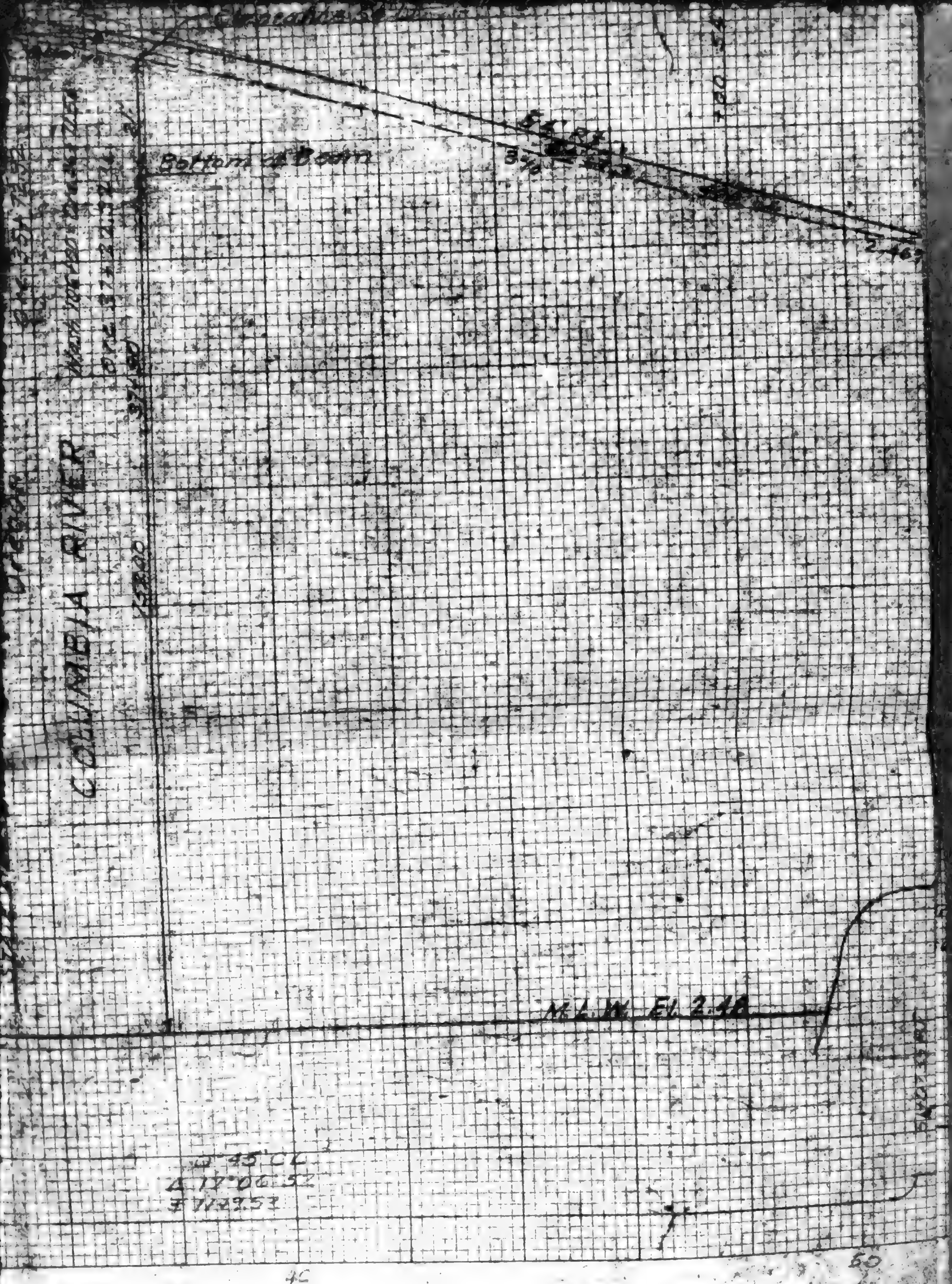
0

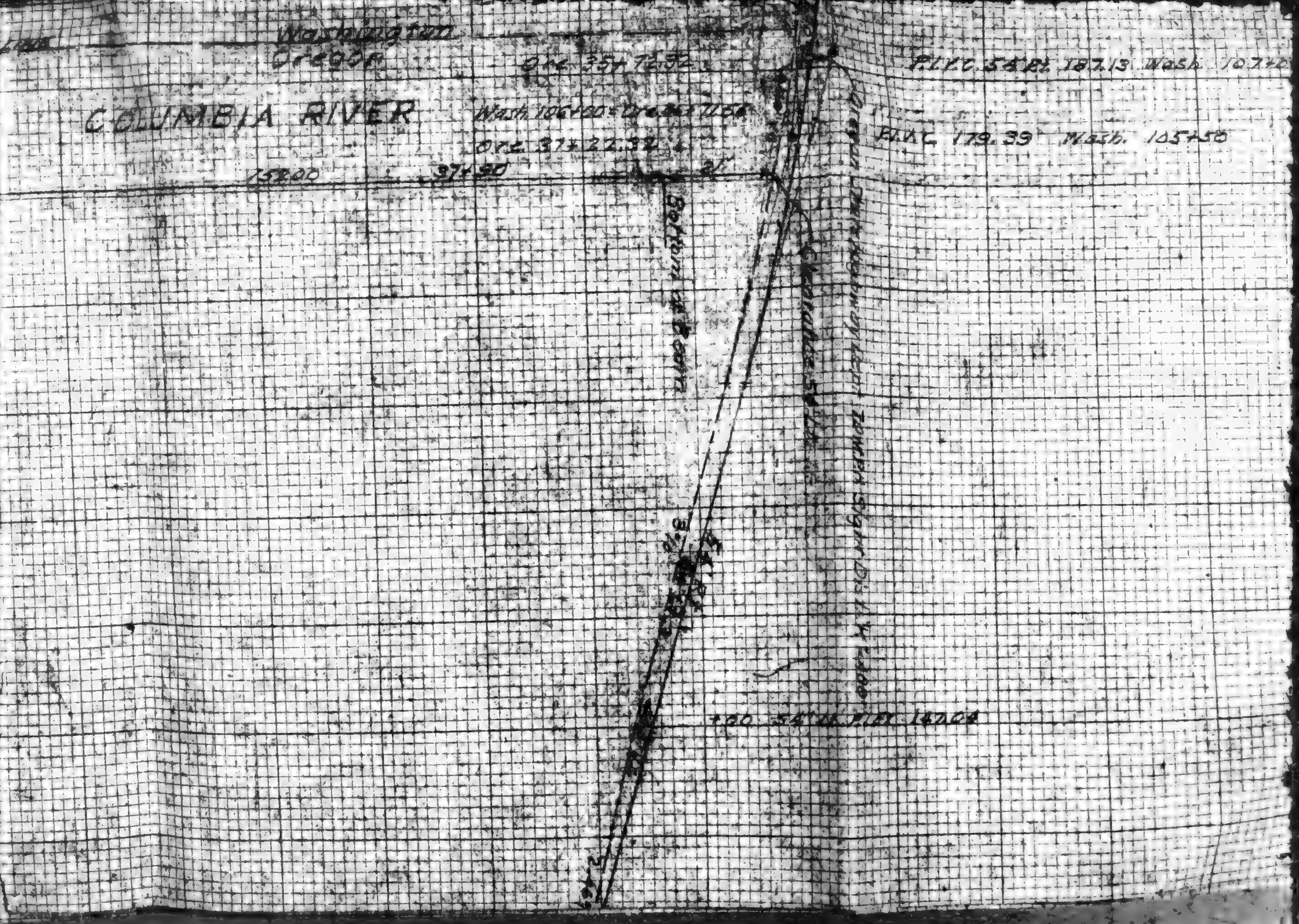

WASH.
LEWIS &
=20'
1"=200'
ATUM – U.S.C.&G.S. 1947 Adjustment
140W
135W
130W
125W

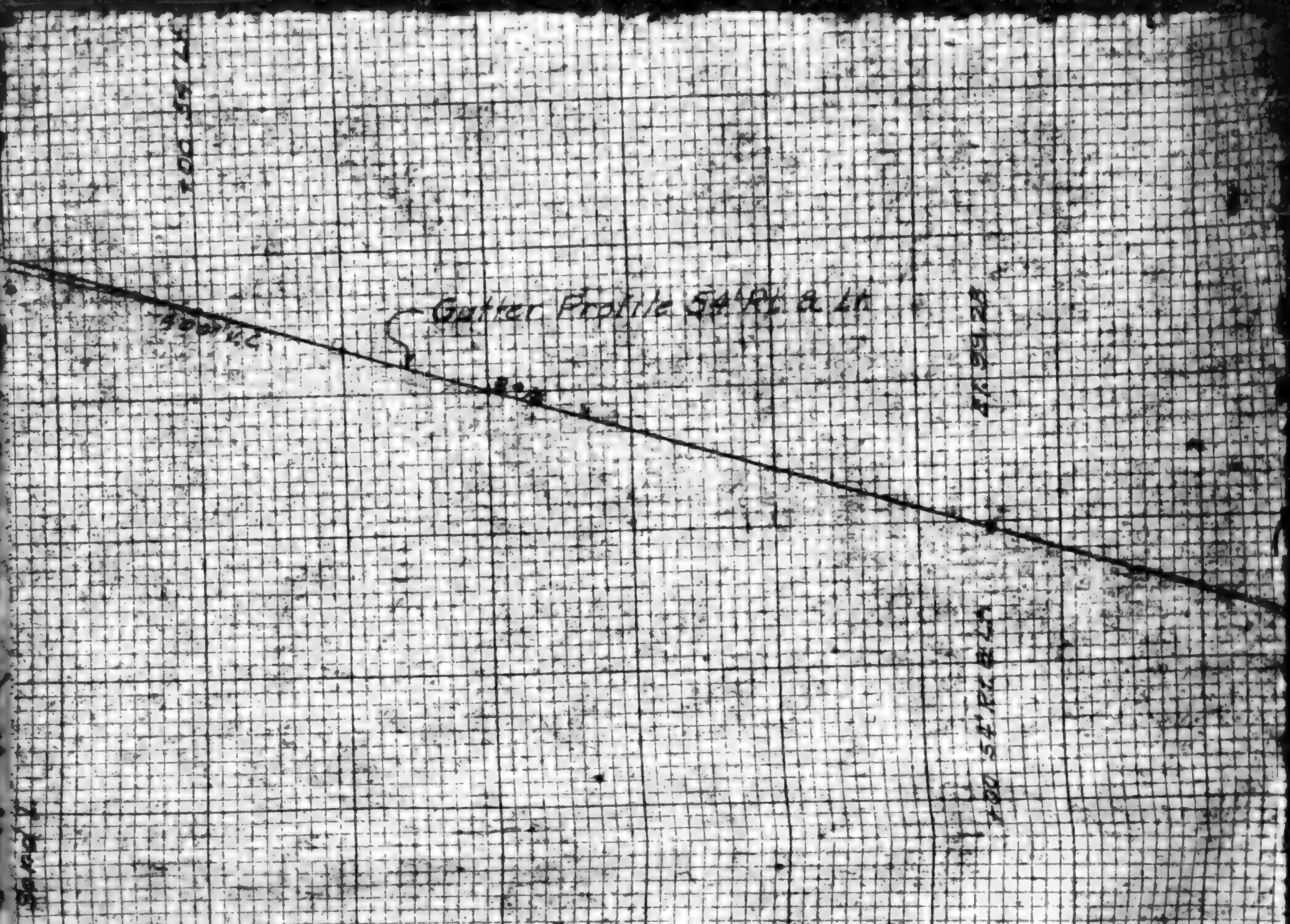

Revised To Washington
As Shown On Plan With
3.00%
℄ El. 135.46
134.52
2.91%
Wash. 135+20
Lewis & Clark Hwy. 35+8

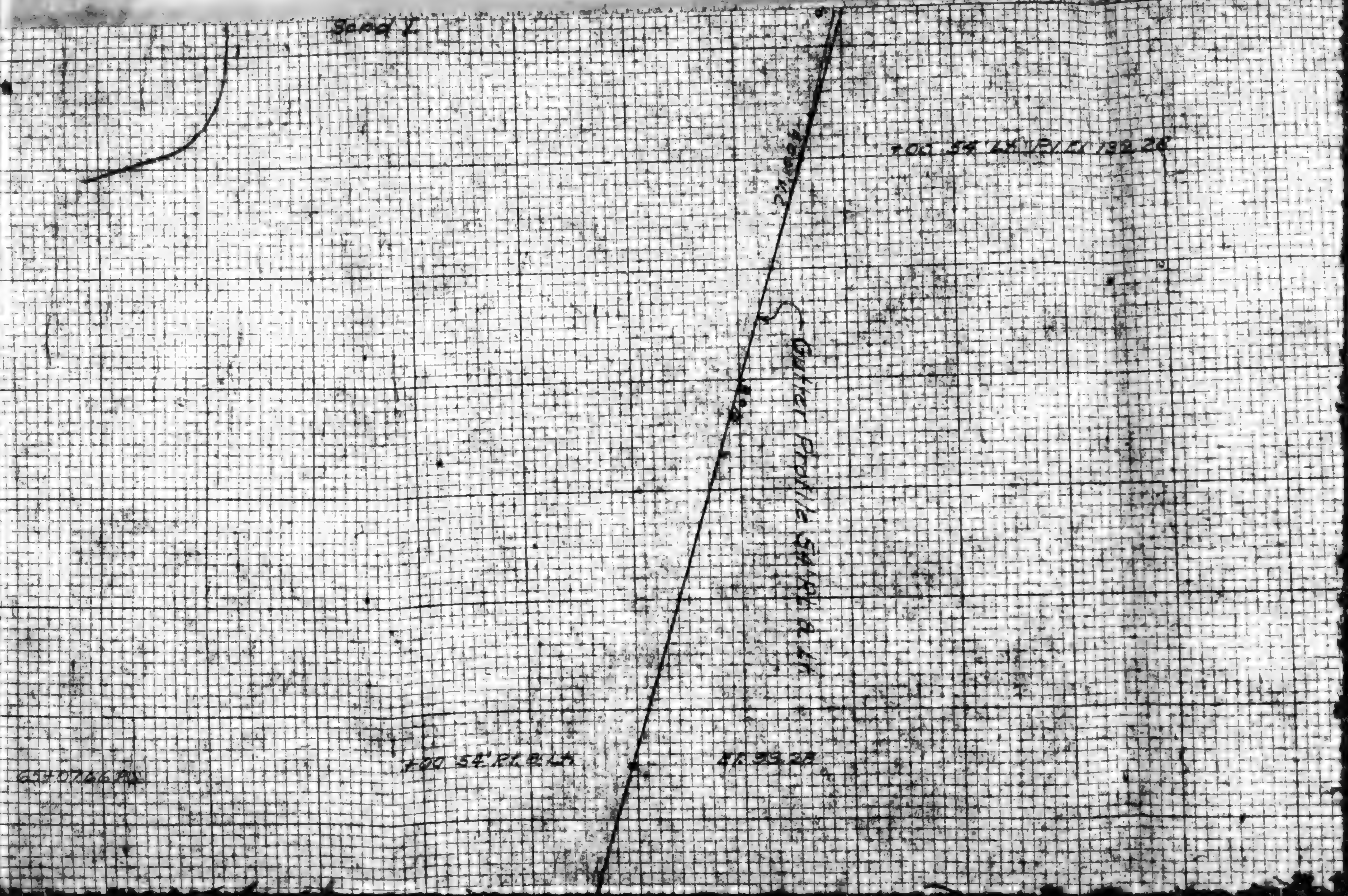

160
140
120
100
80
60
40
20
Wash. Hwy 20
Evergreen Hwy
S.P.&S. R.R.
2897.5 Al P.
120 W
113 W
110 W
20
30

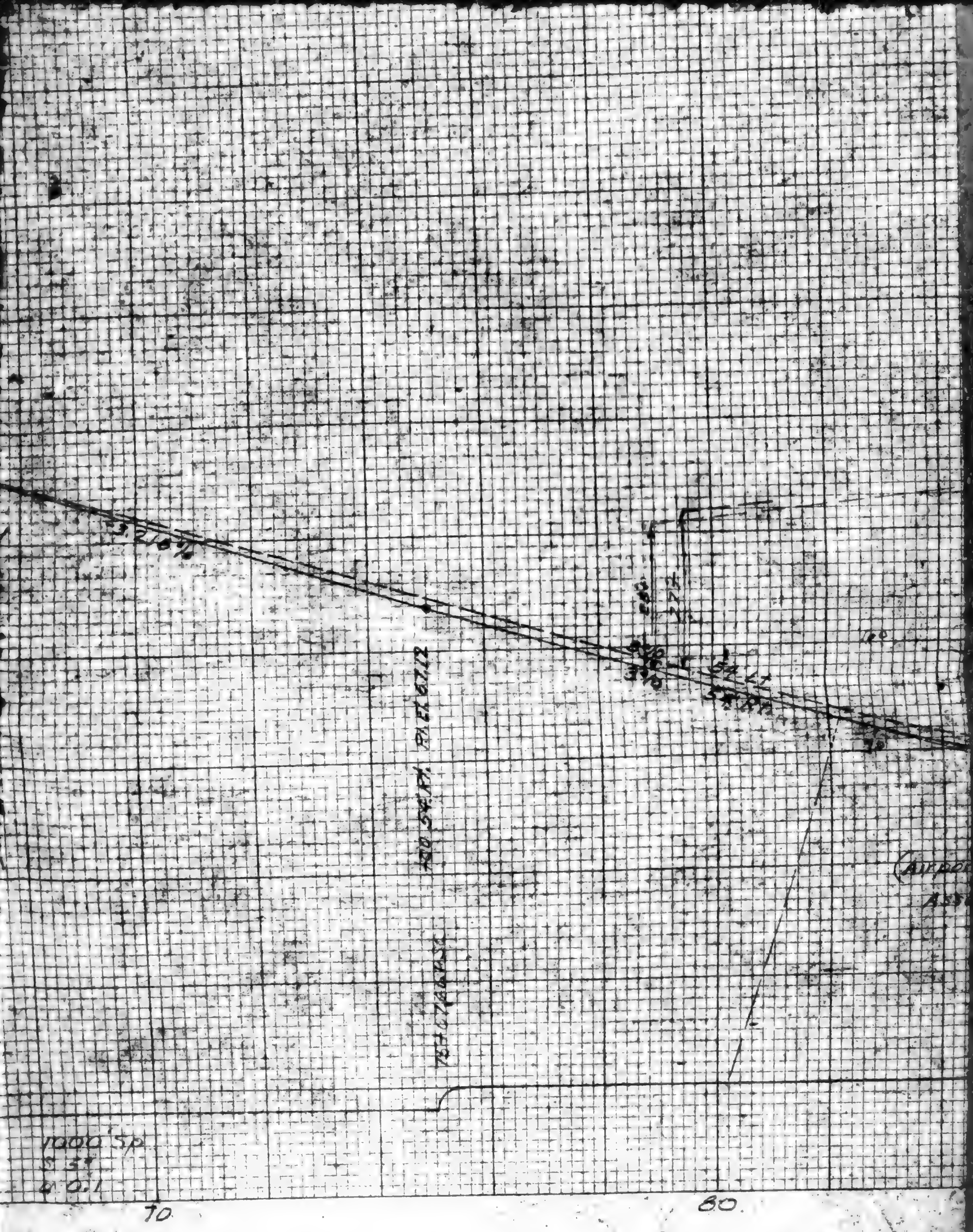

54' Rt. C L.
200
180
160
140
120
100
80
60
40
20
0
Evergreen Hwy
S.P.&S. R.R.

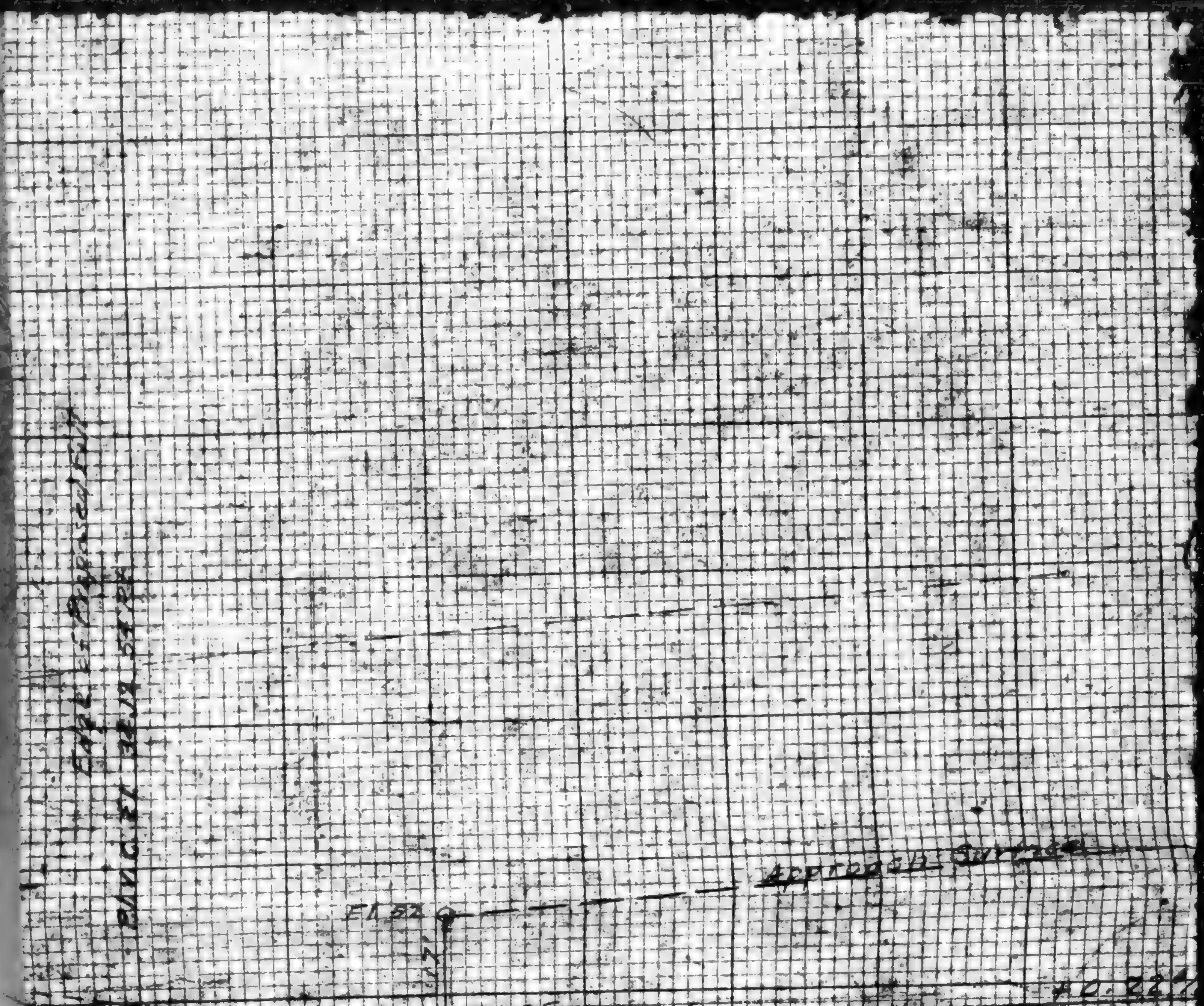
Bottom of Boom
COLUMBIA RIVER
Oregon
37+00
38+00
3½
2.46
120
M.L.W. El. 2.48
Δ 17°06.52
40
60


Washington
Oregon
Ore. 35+72.52
P.I.V.C. 54+82 187.13 Wash. 107+2
COLUMBIA RIVER
Wash. 106+00 = Ore. 37+00
Ore. 37+22.52
P.I.V.C. 179.39 Wash. 105+50
15800
37+90
Bottom of Boom
Clearance 54 Lt.
Oregon State Highway Dept. Tower Sight Dist. K=400
3%
+00 54+ P.I.E.T. 147.04
2.46%

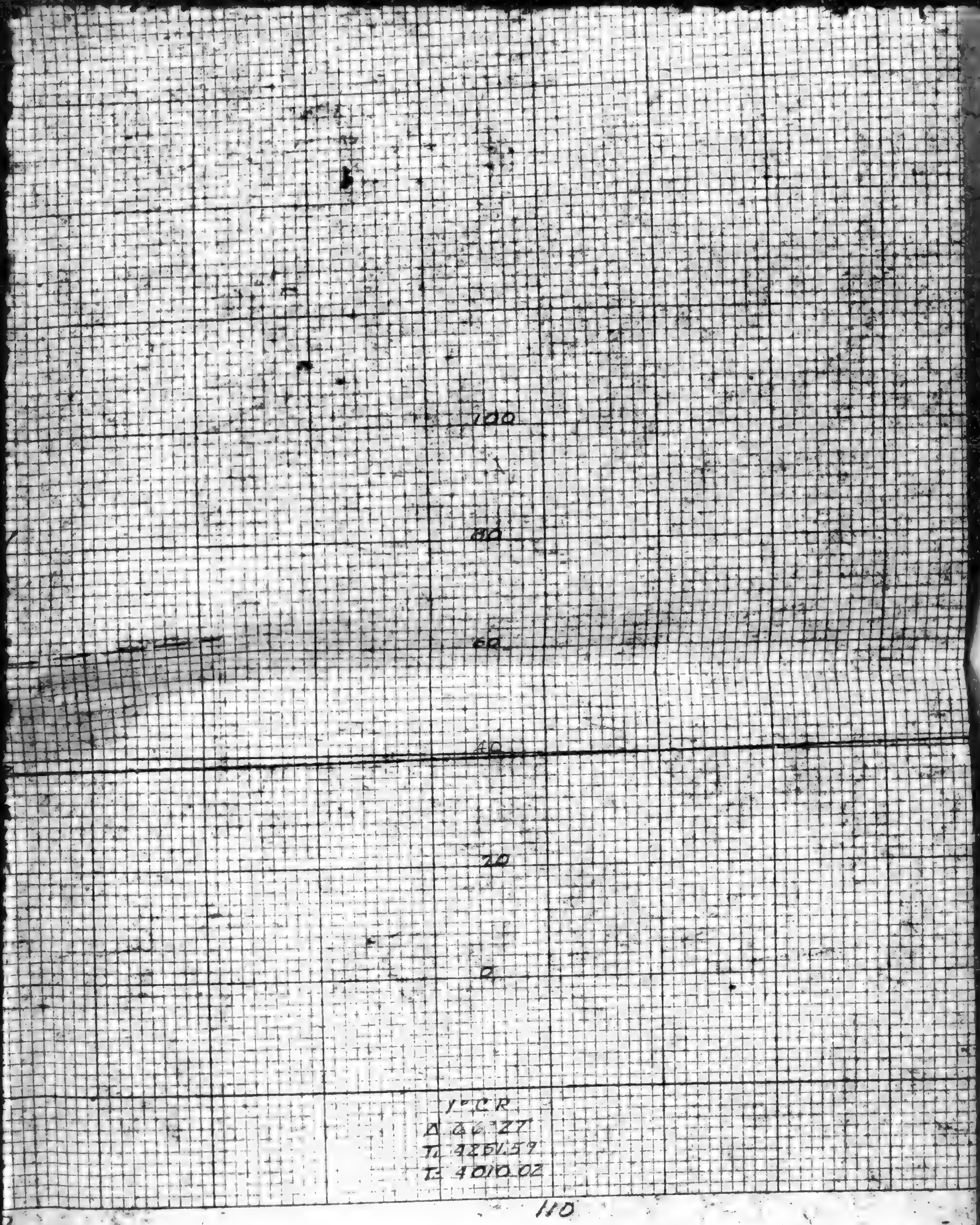

Gutter Profile 54'Rt & Lt

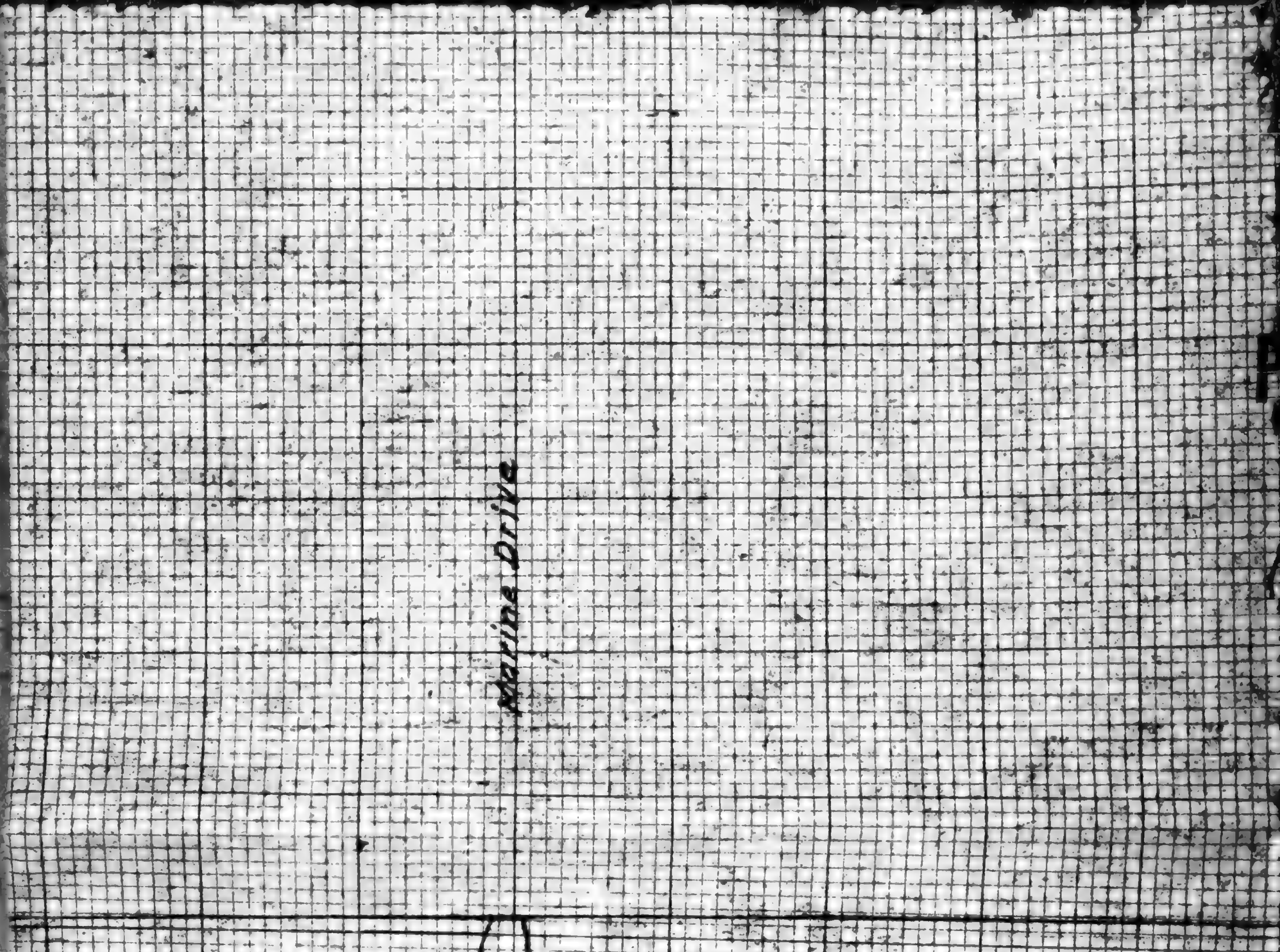

Sand I.
+00 54' Lt Rt Lt 132.28
400' V.C.
Gutter Profile 54' Rt & Lt
+00 54' Rt & Lt
El. 99.28
65+07.66 PL


-3.21%
730 54 P.I. P.I. EL 67.12
73+67.40 P.C.
280
275
120
(Airpo
Ass
1000 Sp
S 5
0.1
70
80

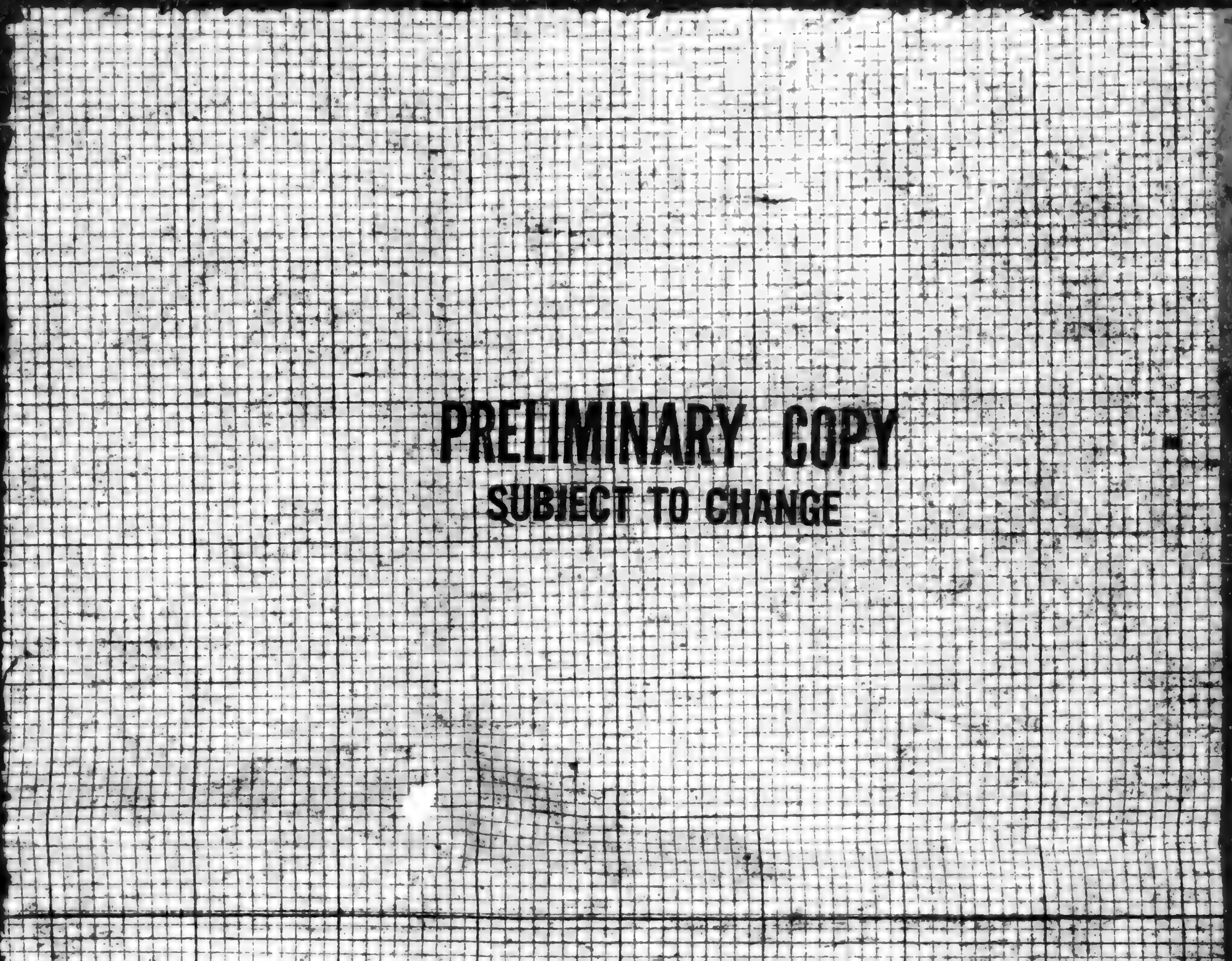


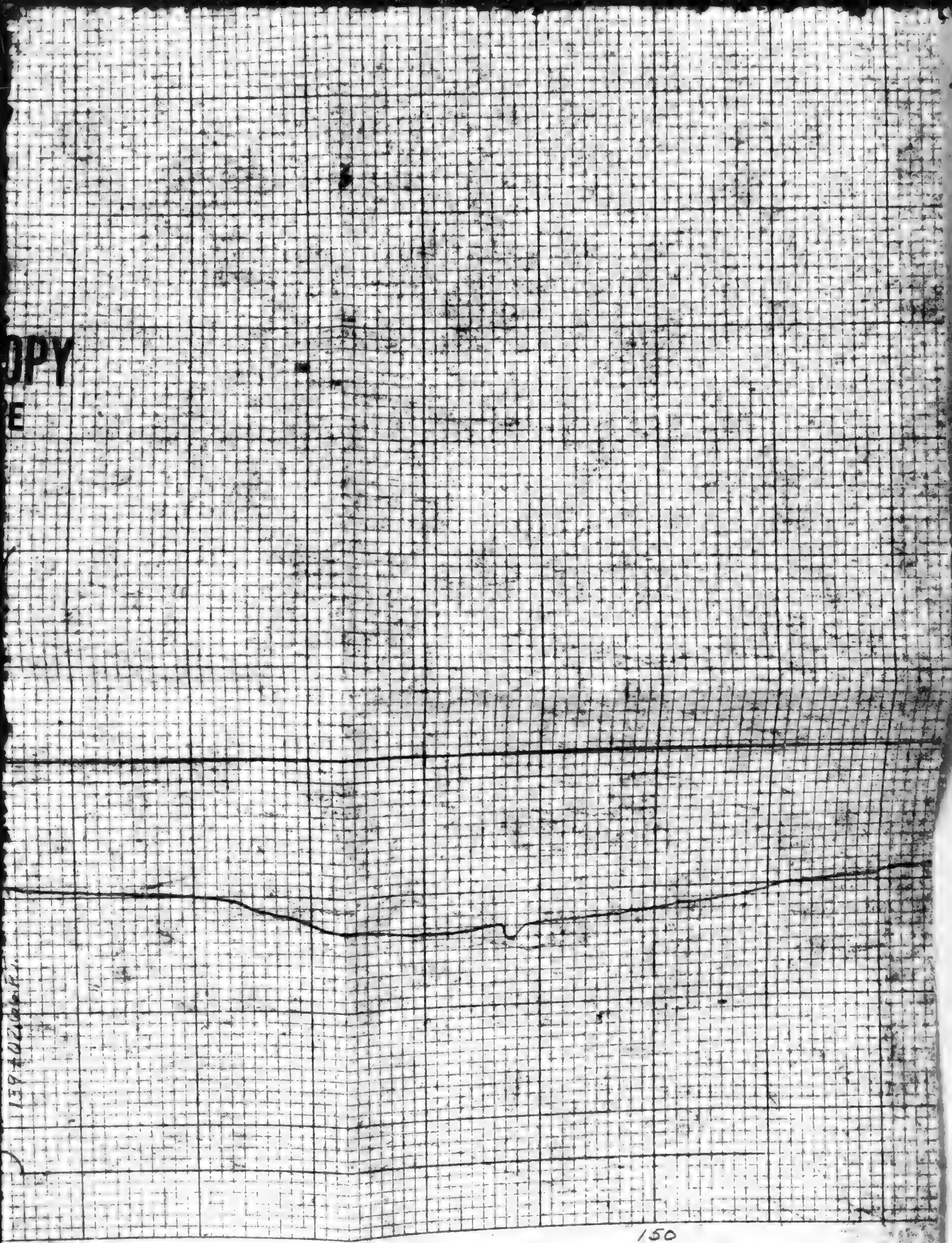
Edge of Proposed Fill
BLVD. EL 32.12 54 RR
EL 52
Approach Surface
EL 35
t Fill to 40')
imed Area
90
10


100
80
60
40
20
0
1° C R
Δ 46°27'
TL 4261.59
T 4010.02
110


Marine Drive
120
120

PRELIMINARY COPY
SUBJECT TO CHANGE


134+02.66 P.C.S
500 Ip.
S 2°30'
D.C.2
139+02.66 P.T.
120
140


OPY
E
139-1026
140
150

RECEIVED
JUN 17 1968

DEPARTMENT OF THE ARMY
PORTLAND DISTRICT, CORPS OF ENGINEERS
626 PITTOCK BLOCK
PORTLAND, OREGON 97205

NPPND-WM-P

12 June 1968

Klaboe
Edwards
Wolfe
6-17-68

Col R Br
2312

Forrest Cooper
State Highway Department
Salem, Oregon 97310

68-47

Dear Mr. Cooper:

This is to acknowledge receipt of your recent letter regarding Public Notice 68-47 for the Portland International Airport Expansion.

The Portland District Corps of Engineers thanks you for your interest. Please be assured that your comments, as well as all other aspects of the proposed work, will be carefully considered by the Corps of Engineers to determine feasibility of the work and the general public interest. In addition to the Corps of Engineers' study of the comments received, the Port of Portland has, in accordance with our normal procedures, been furnished copies of letters received in response to our Public Notice. The Port has been requested to study these letters with a view to resolution of problems presented.

After receiving the Port's reply and after additional study by the Corps a decision will be made whether to hold a public hearing. This decision will be made in approximately one month. Holding of such a hearing would be widely advertised through our regular Public Notice list and through other public media. Additionally, those persons and organizations who have written regarding Public Notice 68-47 will be notified in writing of such a hearing. Ample notice will be provided by such announcement to enable interested persons to attend.

Sincerely yours,

Robert L Bangert

ROBERT L. BANGERT
Colonel, Corps of Engineers
District Engineer

NOTED
R.F. PORTER

Copy to Merchant
6-18-68

RECEIVED
JUN 14 1968
OFFICE OF
STATE HIGHWAY ENGINEER

4

RECEIVED
JUN 7 - 1968

FOR FILING

Const

R/W

EPF

Col R Xing

June 6, 1968

Mr. R. E. Simpson
Division Engineer
Bureau of Public Roads
477 Cottage Street, N. E.
Salem, Oregon 97301

Dear Sir:

Re: Columbia River Crossing, I-205

As you know, we are in tentative agreement with the Port of Portland concerning the relocation of the northerly airport runway and the proposed location of a fill to accommodate our highway easterly of this new runway.

The airport proposal calls for the construction of a dredged fill for a portion of the highway crossing of the Columbia River. Approval is hereby requested for Interstate participation in the cost of constructing sufficient fill to accommodate the highway section. No estimates are as yet available of the amount of material that will be required for this fill. They will be forwarded to you as soon as they become available.

Very truly yours,

Forrest Cooper
State Highway Engineer

By

F. B. Klaboe
Assistant State Highway Engineer

FBK:srb

cc: Forrest Cooper
R. L. Porter
Tom Edwards
F. D. Morgan
Ivan Merchant
L. H. Young

RECEIVED
MAY 31 1968

FOR FILING

Const
R/W
EPF

Col. R. Be

May 29, 1968

Mr. George M. Baldwin
General Manager
Port of Portland
Box 3529
Portland, Oregon 97208

Dear Mr. Baldwin:

Re: Interstate 205

The State Highway Department will require about two million cubic yards of dredged fill between the Union Pacific Railroad line that lies north of Sandy Boulevard and Marine Drive.

It may be premature to discuss the possibility of adding this material to your dredging contract (at our expense, of course) but I would like you to consider in your plans the possibility of providing this material for us.

As of this date, we do not have any firm plans ourselves from which to work but we will contact you with more explicit information concerning this matter in the very near future.

Very truly yours,

Forrest Cooper
State Highway Engineer

By

F. B. Klaboe
Assistant State Highway Engineer

FBK:srb

cc: R. E. Simpson, Bureau of Public Roads
Forrest Cooper
R. L. Porter
F. D. Morgan
L. H. Young

Form [illegible] (4-67)

UNITED STATES GOVERNMENT

# *Memorandum*

Klabse

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
BUREAU OF PUBLIC ROADS
477 Cottage St. NE.- Salem OR 97301

DATE: May 21, 1968

In reply refer to: 08-35.1

TO : Mr. Forrest Cooper, State Highway Engineer
Salem, Oregon

FROM : R. E. Simpson, Division Engineer
Salem, Oregon

SUBJECT: Public Hearing
Columbia River at Portland International Airport
Dredging and Filling
Corps of Engineers

Public Notice 68-47 dated May 10, 1968 from Colonel Robert L. Bangert of the Corps of Engineers invited comments by June 10, 1968 concerning a permit from the Port of Portland to dredge 33 million cubic yards of material from the Columbia River. This office has indicated to our Regional Office that the material necessary to construct Interstate 205 may be obtained as part of the operations proposed by the Port of Portland. As has been discussed with you, we encourage an agreement with the Port of Portland for inclusion in its contract for dredging arrangements for materials needed to construct the fill on Interstate 205.

orig to Morgan
copy to Young
5-29-68

RECEIVED
MAY 22 1968
OFFICE OF
STATE HIGHWAY ENGINEER

BUY U.S. SAVINGS BONDS REGULARLY ON THE PAYROLL SAVINGS PLAN

RECEIVED
MAY 22 1968
[illegible]

Const
r/a
EP7

May 21, 1968

Col R B

2312

68-47

State Water Resources Board
300 Public Service Building
Salem, Oregon 97310

Gentlemen:

This is in reply to your notice of May 14 concerning the Port of Portland's request for a dredging and filling permit on the Columbia River Highway at Portland International Airport.

The State Highway Department has been working closely with the Port in conjunction with our Interstate 205 highway routing which is shown in red on the attached sketch. In discussions, the Port has proposed a fill area which will contain our route. We are in agreement with the proposed airport facility and urge that speedy approval be given to the Port of Portland so that plans can be accomplished.

Very truly yours,

Forrest Cooper
State Highway Engineer

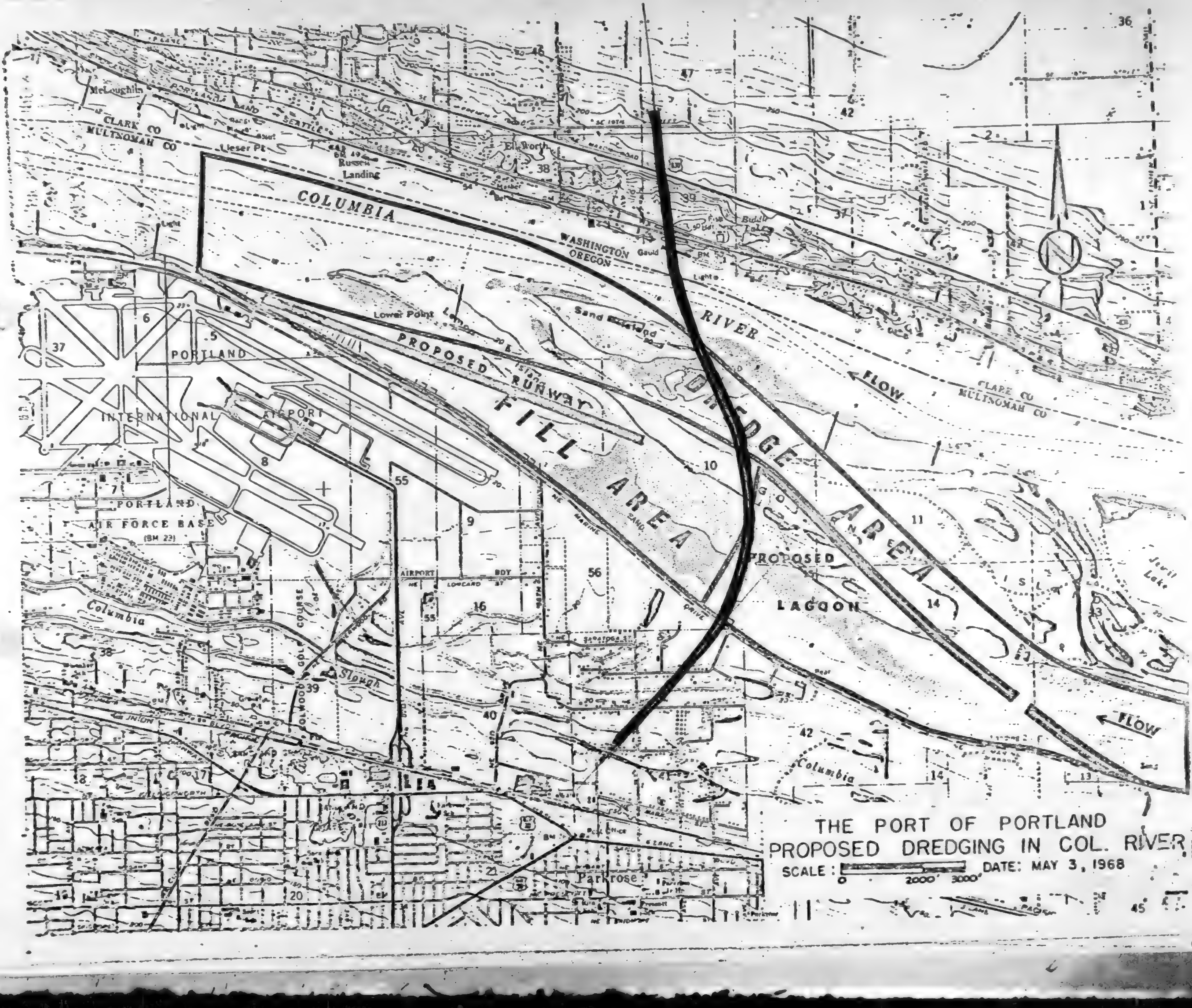
Attachment

cc: Department of the Army w/ attachment
Portland District, Corps of Engineers
628 Pittock Block
Portland, Oregon 97205

Port of Portland w/ attachment
Post Office Box 3529
Portland, Oregon 97208

bc: R. L. Porter
F. B. Klaboe
Victor D. Wolfe
F. D. Morgan
A. E. Johnson w/ attachment
L. W. Rulien w/ attachment

DNS:jp jko


COLUMBIA
RIVER
WASHINGTON
OREGON
CLARK CO
MULTNOMAH CO
PROPOSED RUNWAY
FILL AREA
DREDGE AREA
PROPOSED
LAGOON
FLOW
FLOW
PORTLAND
INTERNATIONAL
AIRPORT
PORTLAND
AIR FORCE BASE
Columbia
Slough
Parkrose
Russell Landing
Ellsworth
McLoughlin
Lower Point
Sand Island
Jewit Lake
Columbia

THE PORT OF PORTLAND
PROPOSED DREDGING IN COL. RIVER
SCALE : 0 2000' 3000' DATE: MAY 3, 1968

RECEIVED
MAY 24 1968

FOR FILING
Const
R/W
EPf
Col R Br

May 17, 1968

NOTED
LLOYD P. SHAW

State Water Resources Board
500 Public Service Building
Salem, Oregon 97310

Gentlemen:

We have reviewed the Corps of Engineers Public Notice #68-47 regarding the Port of Portland request to dredge and fill in the Columbia River in the vicinity of Portland International Airport and Government Island.

The proposed project would not directly affect any existing or proposed state park projects.

However, the following recreation interests should be given full consideration:

1. An existing heavy boating use of these channels and shores of the sand bars and islands particularly in the summer season. (State Marine Board and boating clubs)

2. An existing game reserve for waterfowl. (State Game Commission)

3. A potential future county park on Government Island (Multnomah County)

4. The findings of a federal recreation study of island areas. (Bureau of Outdoor Recreation)

We assume that these interests will be fully presented by the agencies or groups directly involved.

Government Island is significant for future recreation because of the close proximity to a heavy population center and its large undeveloped land area bordering waters of the Columbia River. Its recreation use potential is limited by existing excessive air traffic noise, flooding, and the lack of auto access or public facilities.

Although the proposed dredging project may reduce the total future recreation potential, there would still be extensive potentials remaining. The loss of Lemon Island, Sand Island and sand bars at the lower end of Government Island would shift summer boating shoreside activities to the other areas and sand bars nearby. The remaining portion of Government Island contains most of the high ground and natural land area best suited for initiating recreation developments. This remaining area could still be developed to offer extensive water recreation potentials in the future.

Very truly yours,

Richard I. McCosh, Assistant
State Parks Superintendent

RIM:bt

bc: Lloyd Shaw
David Talbot
L. V. Koons
Larry Jacobson

RECEIVED
MAY 17 1968
OFFICE OF
STATE HIGHWAY ENGINEER

8905

8

RECEIVED
JUN 13 1968

June 12, 1968

Port of Portland
Post Office Box 3627
Portland, Oregon 97208

Attention: Mr. Hainemann

Re: Columbia River Crossing
Interstate 205
Multnomah County

Gentlemen:

As requested by Mr. Hainemann's call of June 6, enclosed is a copy of the typical section and profile of the portion of our Interstate 205 facility between Marine Drive and the south end of the proposed Columbia River Bridge.

Very truly yours,

Forrest Cooper
State Highway Engineer

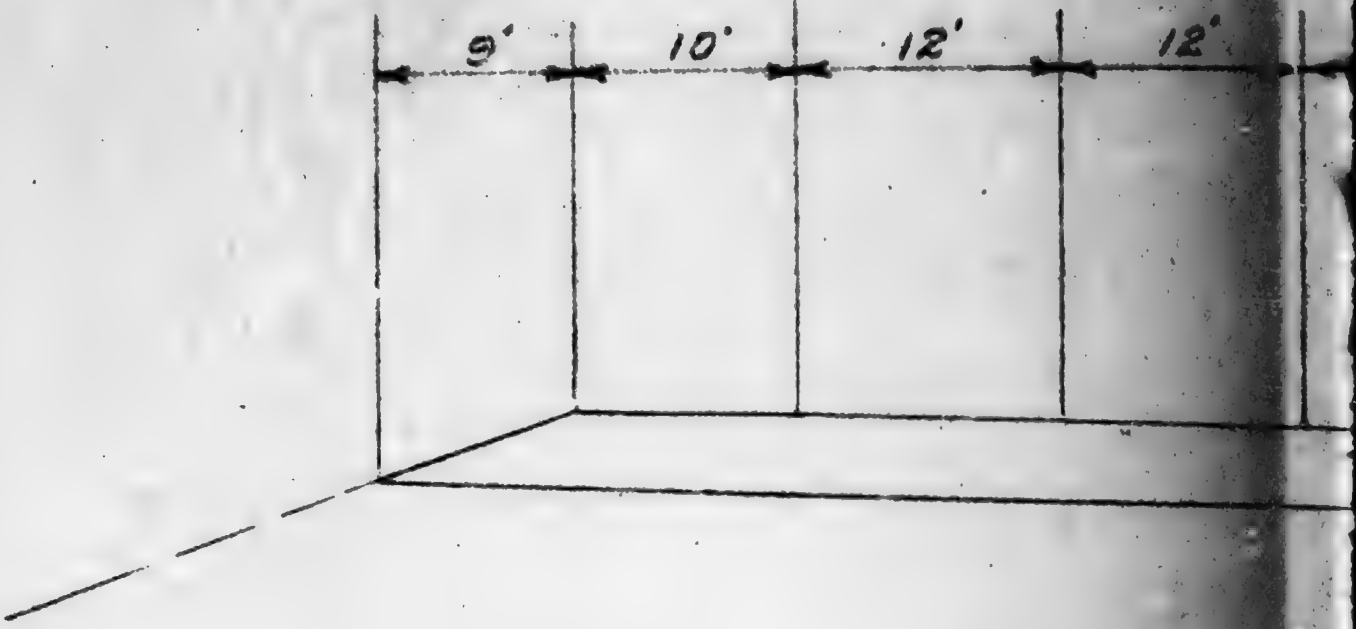
By

F. B. Klaboe
Assistant State Highway Engineer

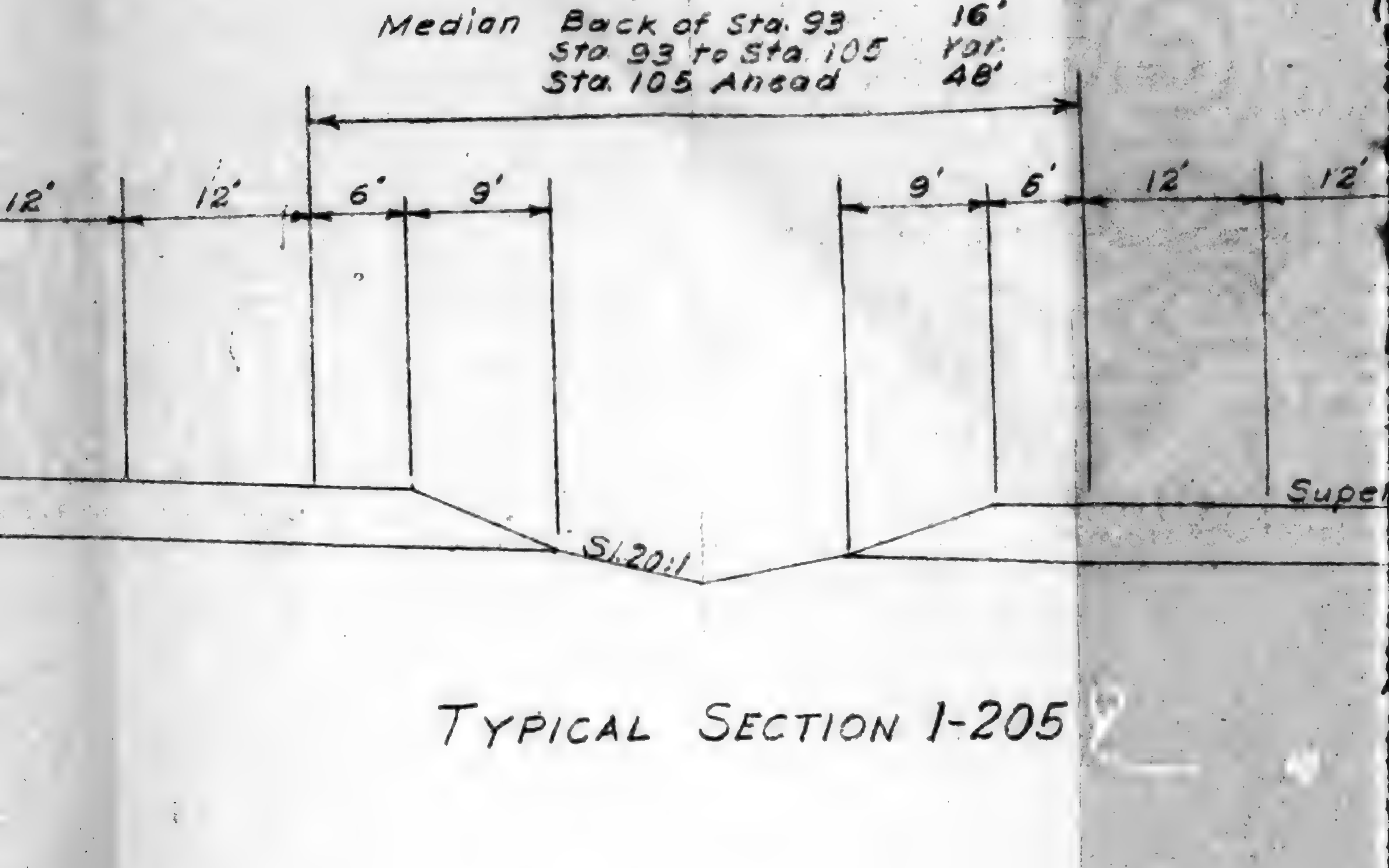
Enclosure

DNS:jp mc

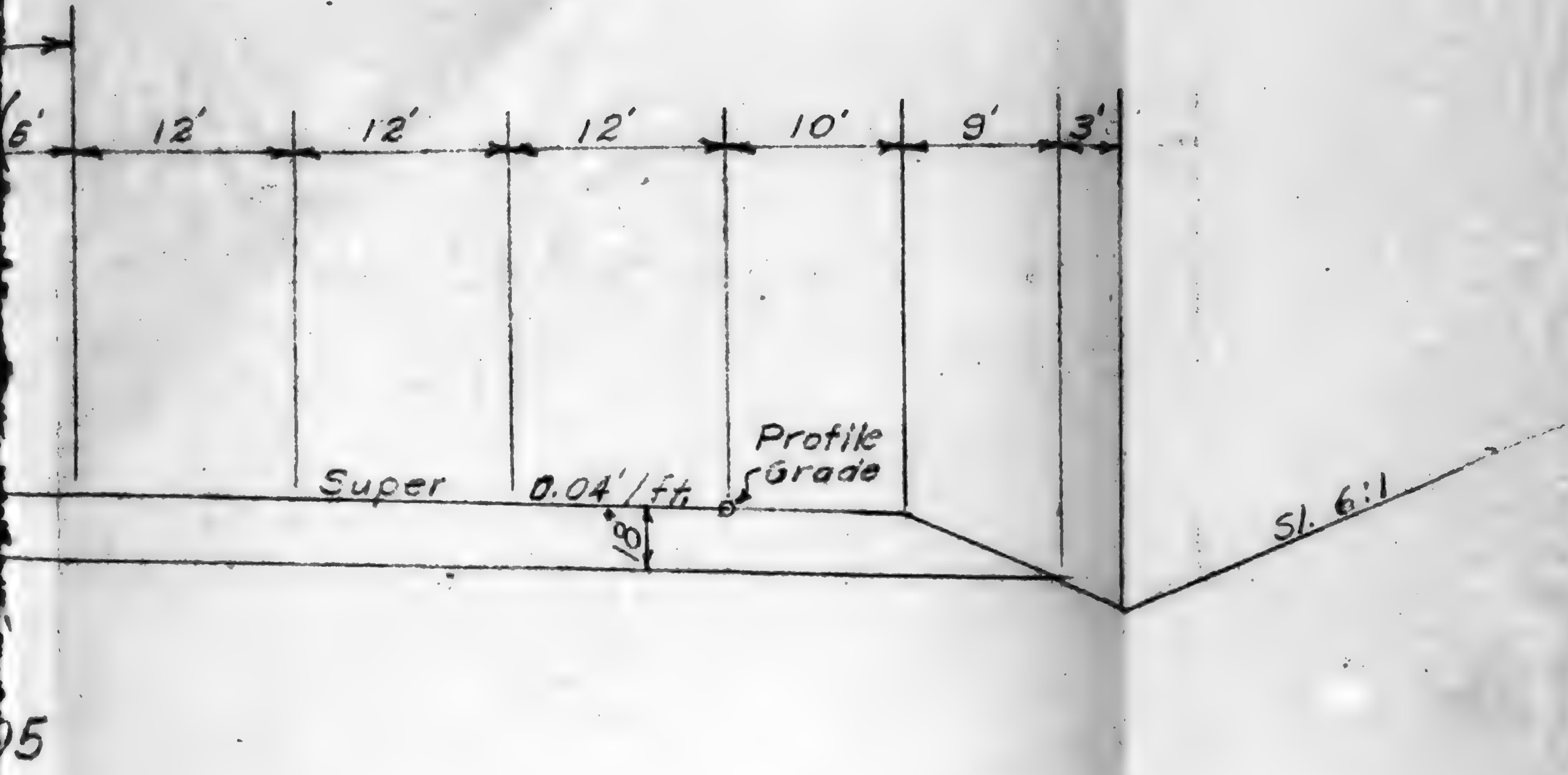
bc Forrest Cooper
R. L. Porter
Victor D. Wolfe
F. D. Morgan
A. E. Johnson (Enclosure)

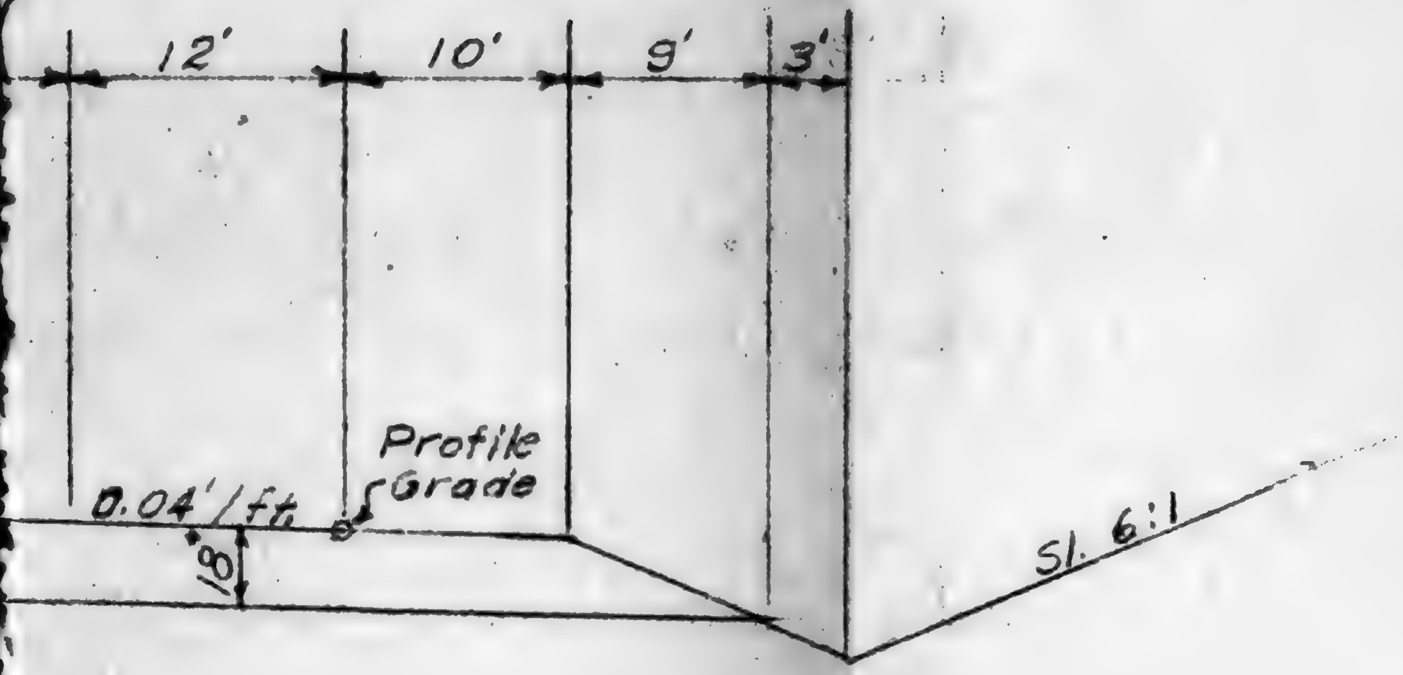


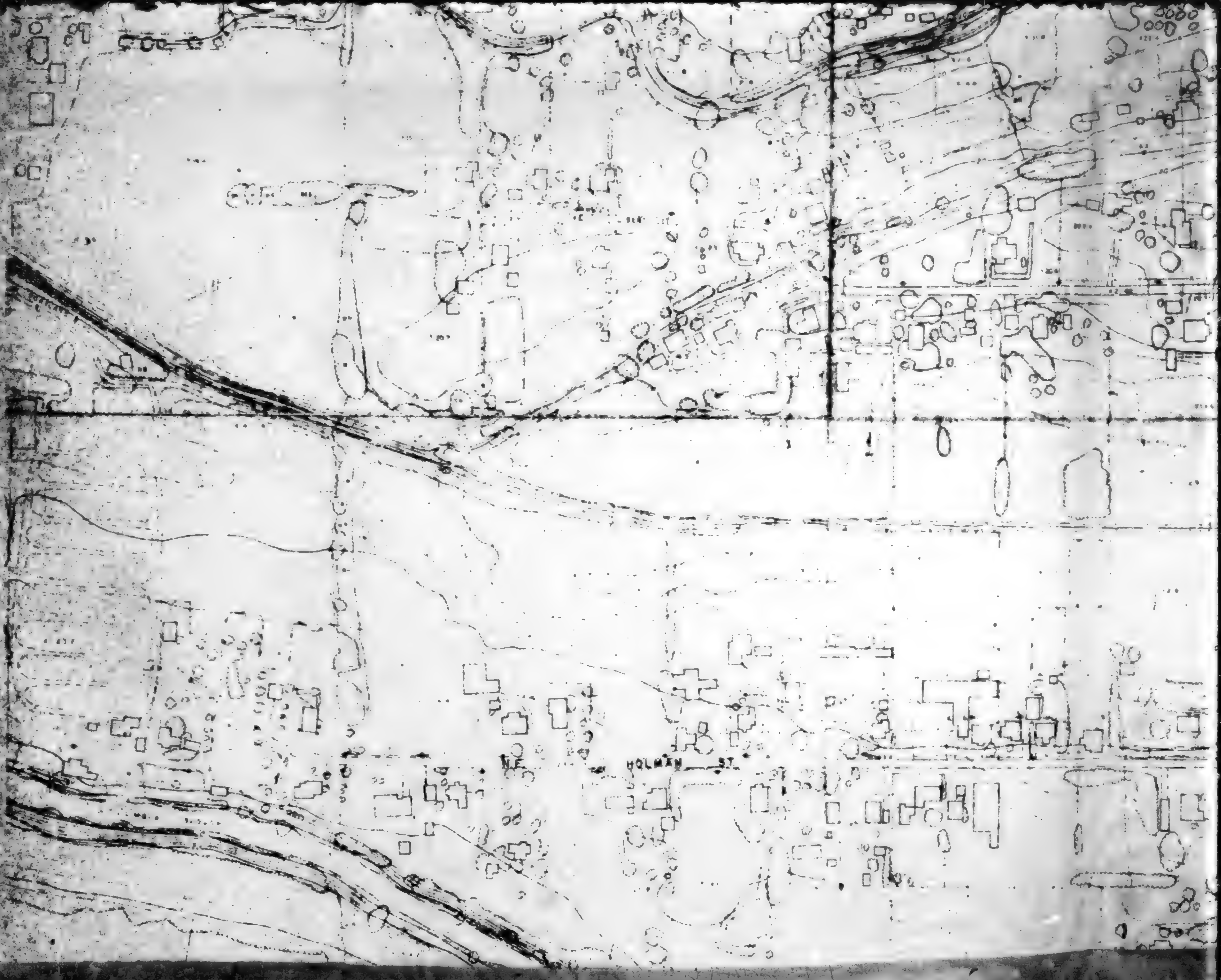
PRELIMINARY COPY
JUN 1 0 1968
SUBJECT TO CHANGE
URBAN DESIGN SECTION

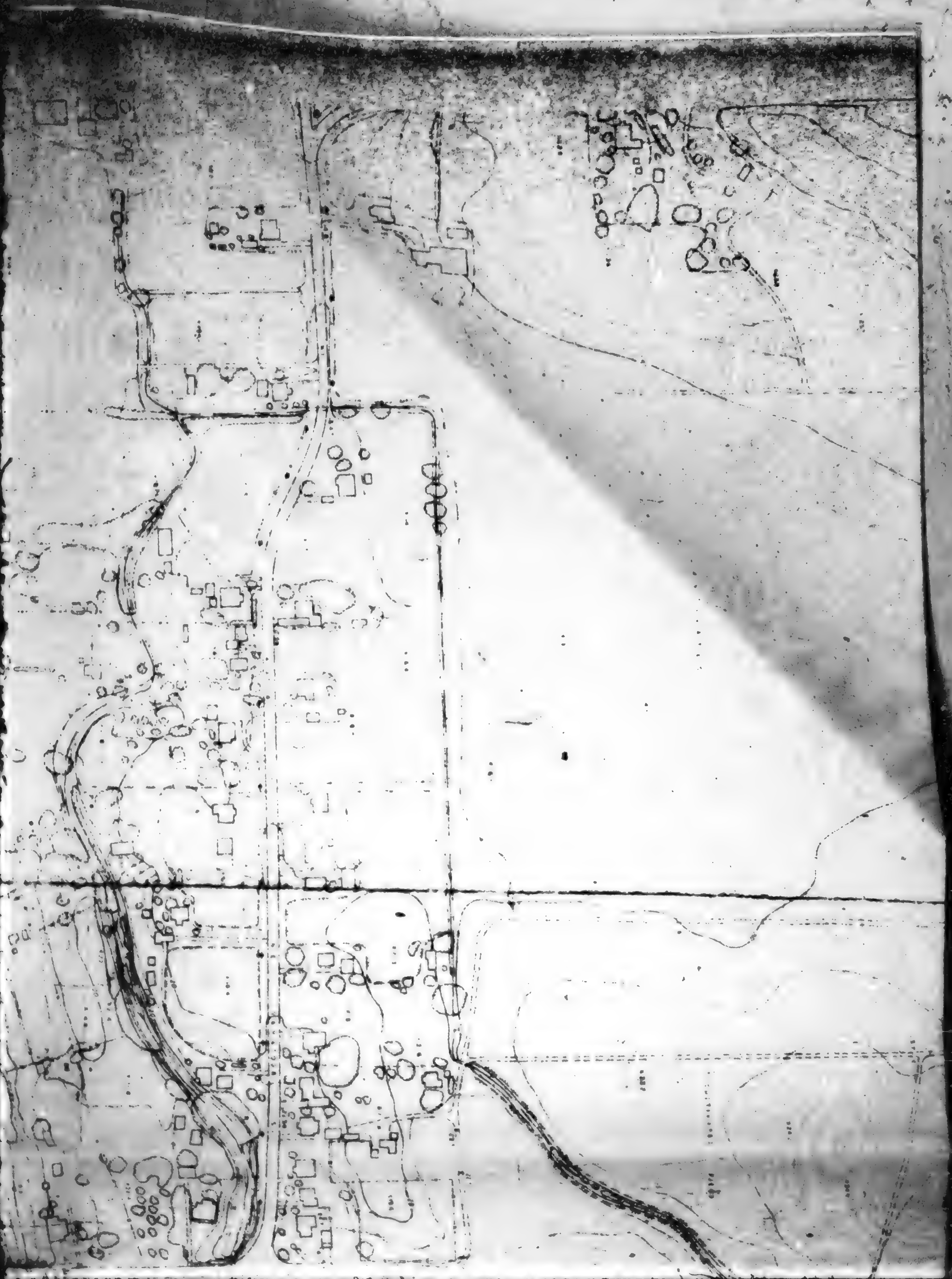

Median Back of Sta. 93 16'
Sta. 93 to Sta. 105 Var.
Sta. 105 Ahead 48'
12'
12'
6'
9'
9'
6'
12'
12'
Supe
Sl. 20:1

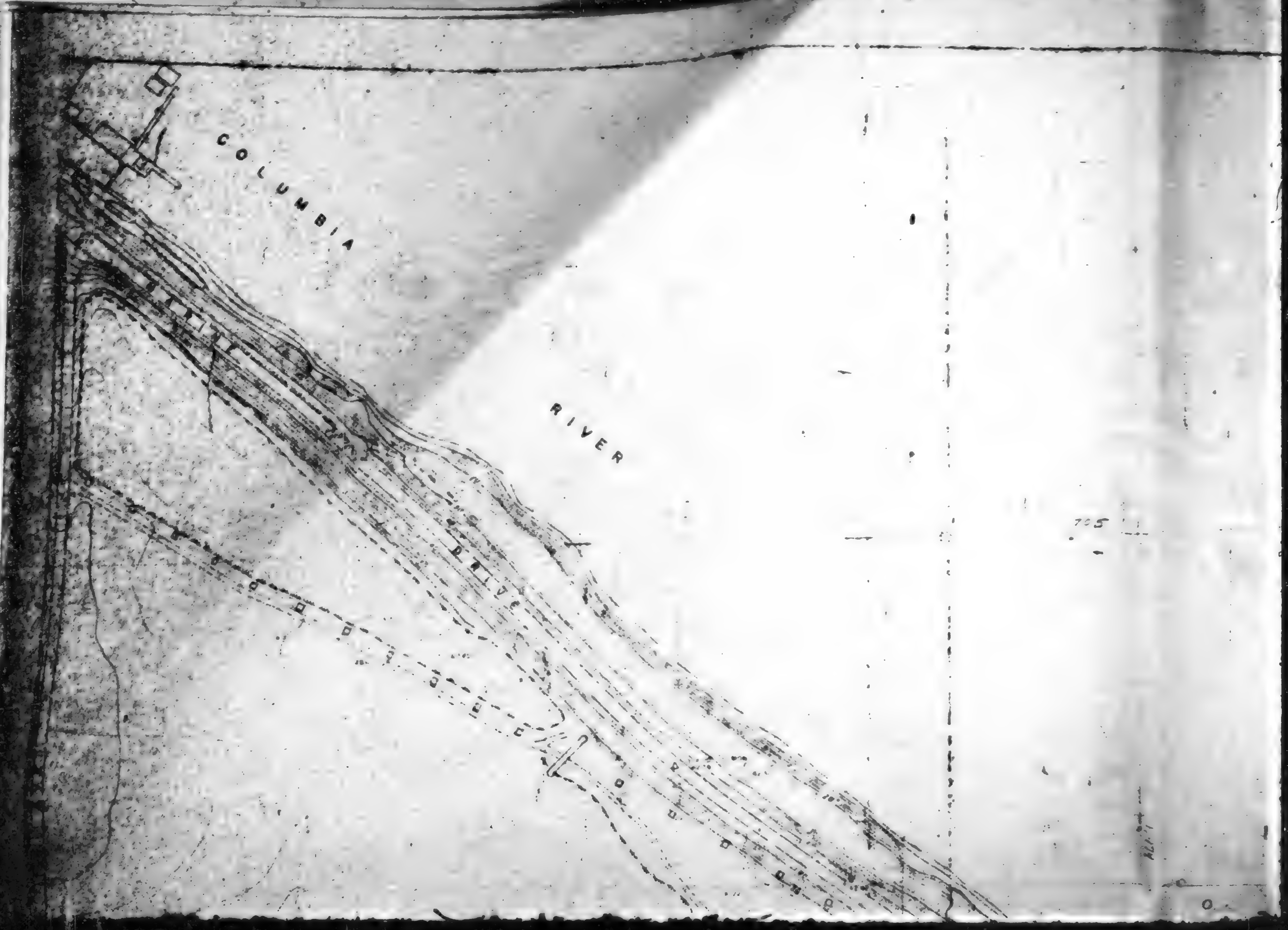
TYPICAL SECTION I-205

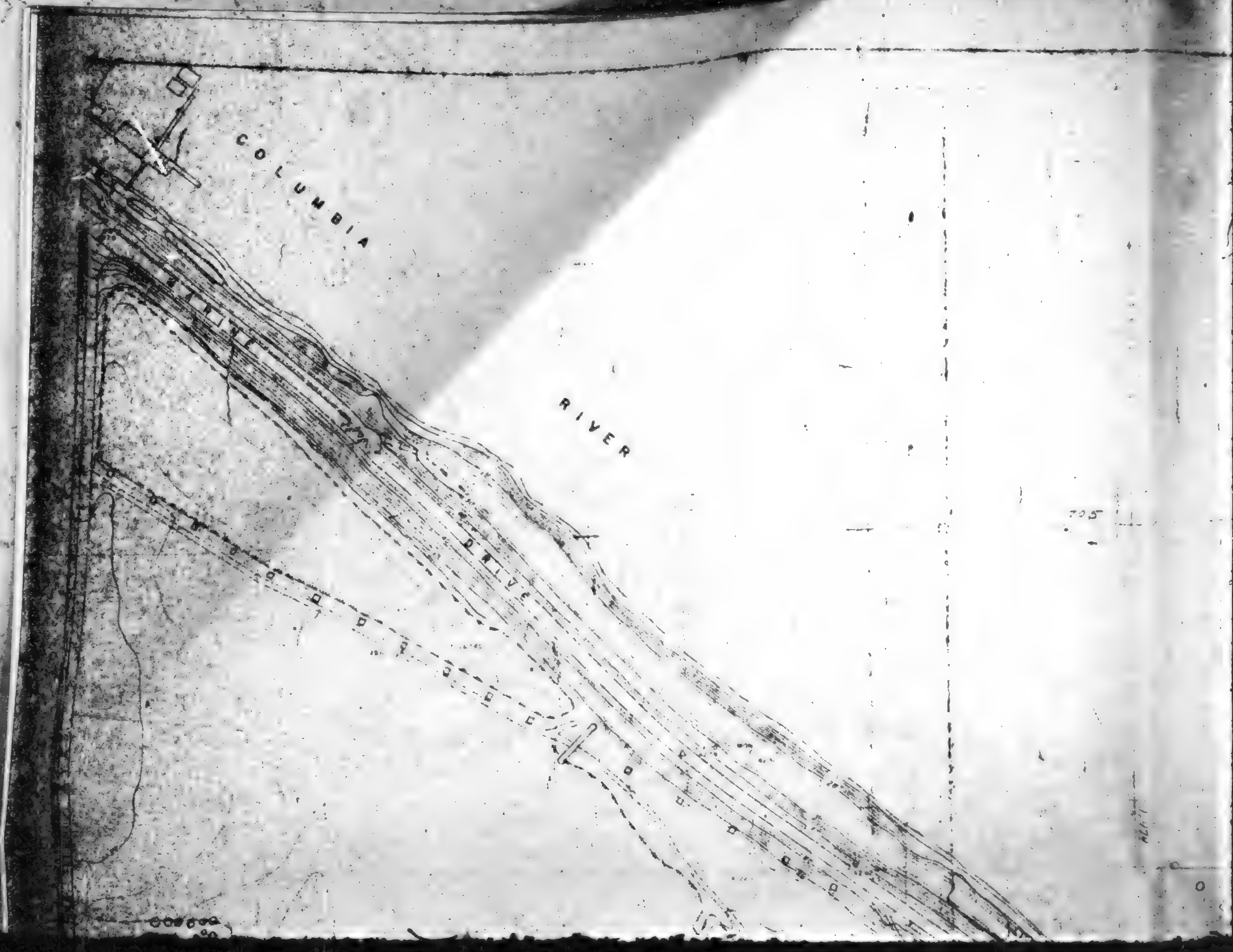

Super
0.04'/ft.
Profile Grade
.08
Sl. 6:1

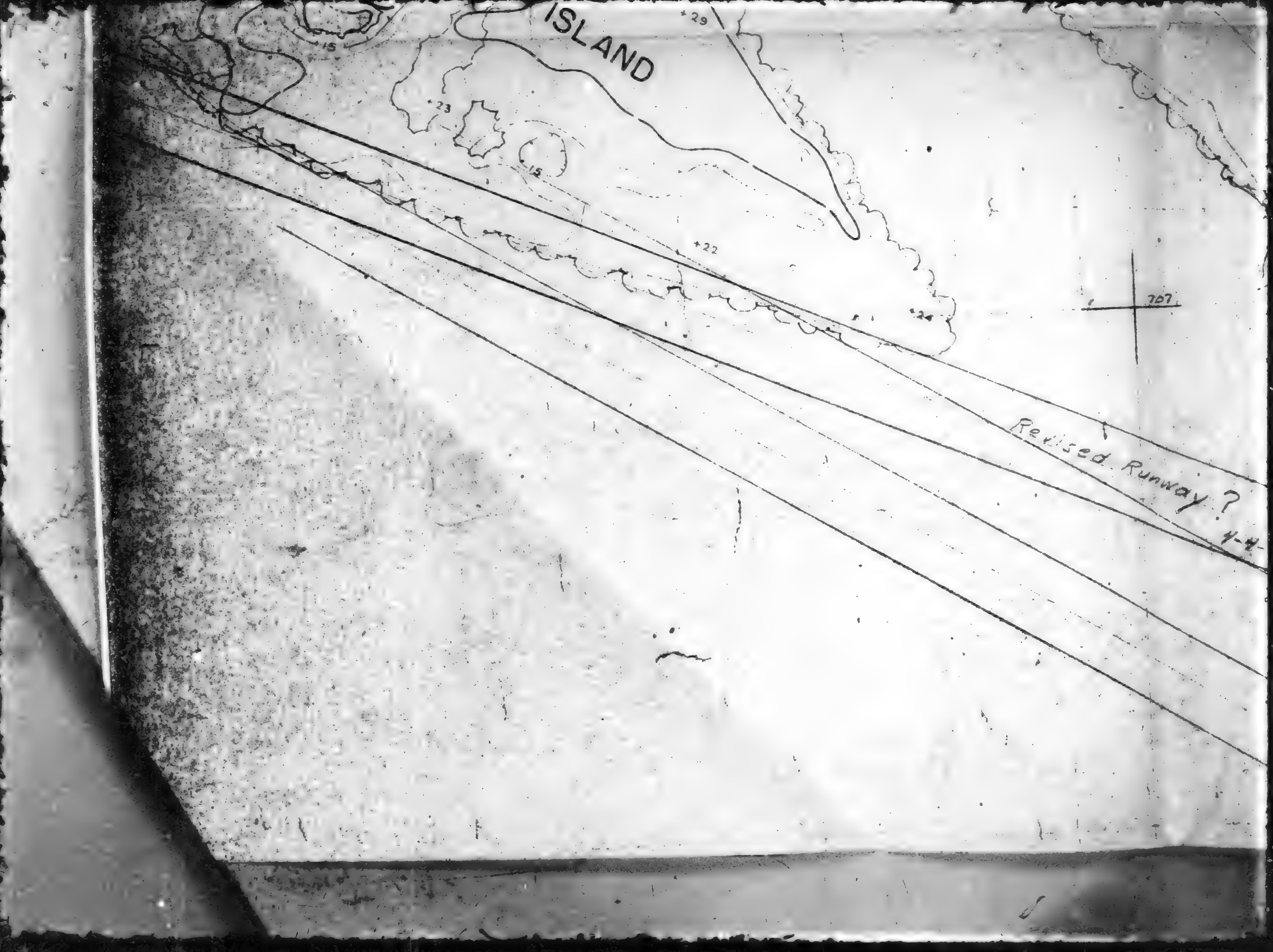

12'
10'
9'
3'
Profile Grade
0.04'/ft.
.08
Sl. 6:1


HOLMAN ST




COLUMBIA
RIVER
DRIVE

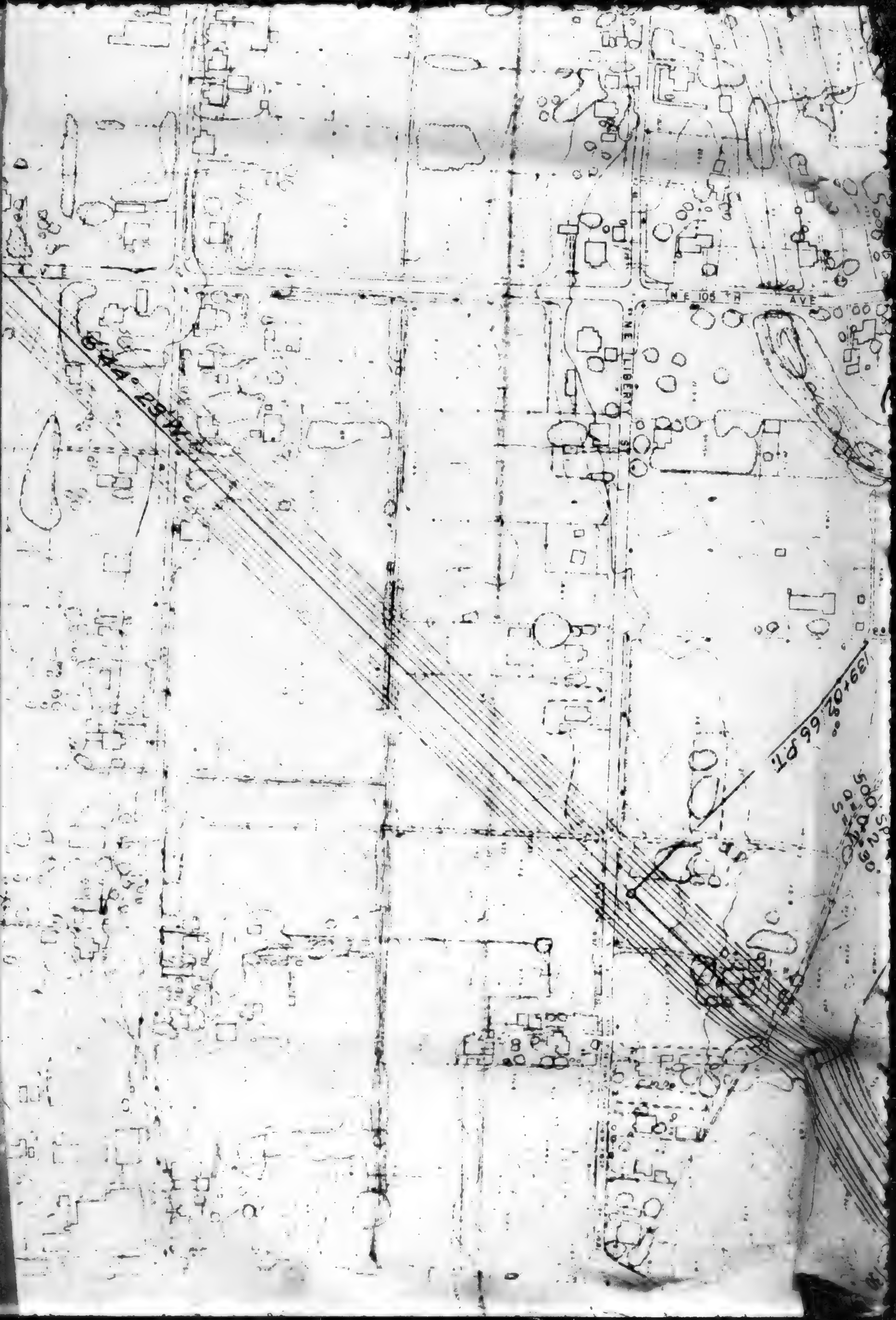

COLUMBIA
RIVER
DRIVE

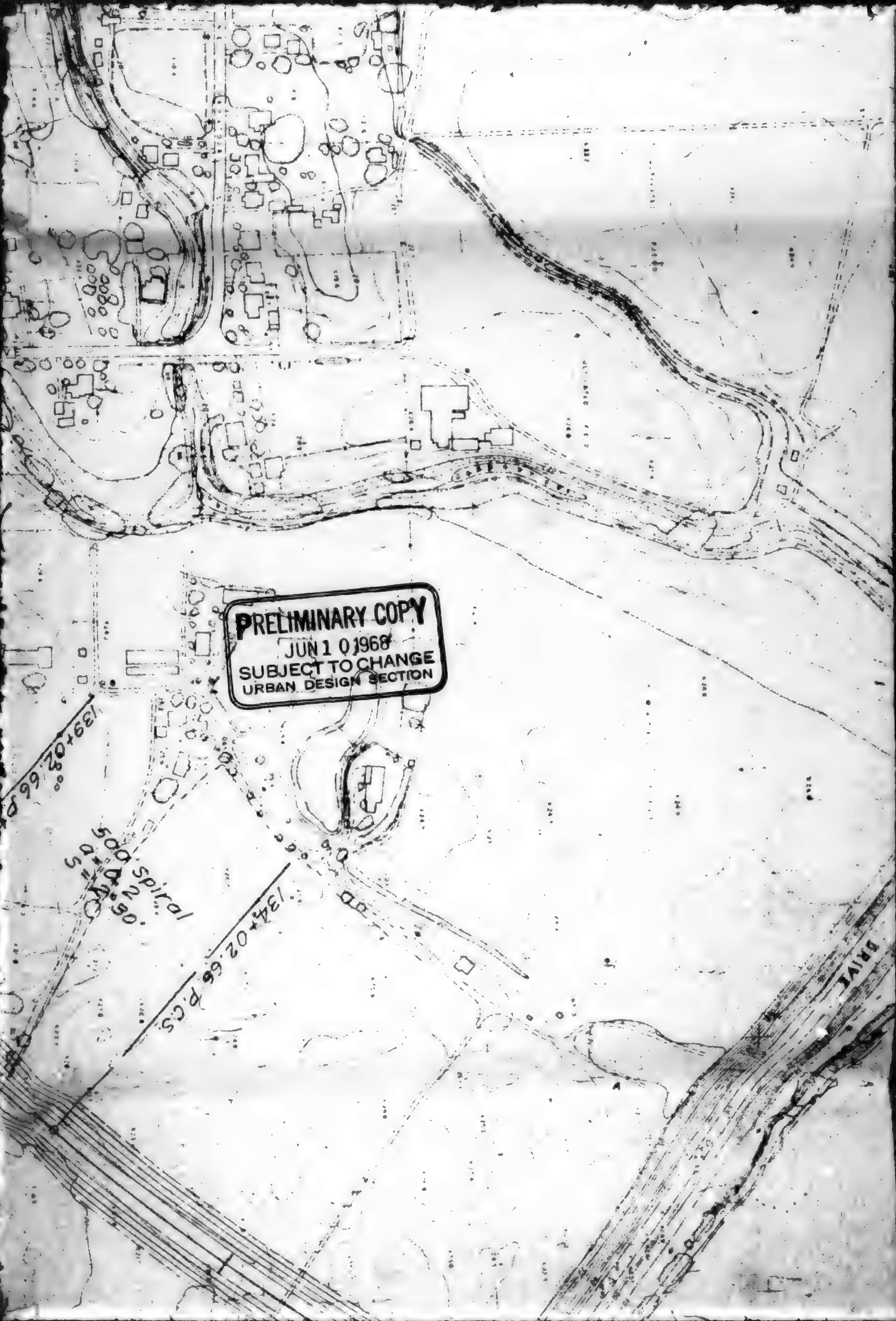

ISLAND
+29
15
+23
15
+22
+24
707
Revised Runway ?
4-4-

Gov Dolphin
23
19
31
25
20
16
29
20
LEMON
25
ISLAND
29
15

℄ Noz

State Line
℄ Navig

N E 105 TH AVE
N E LIBERTY ST
S 44° 29' W
139+02.66 P.T.
5° 30'
S.P.


139+02.66 P
500' spiral
2°00'
134+02.66 P.C.S.
DRIVE

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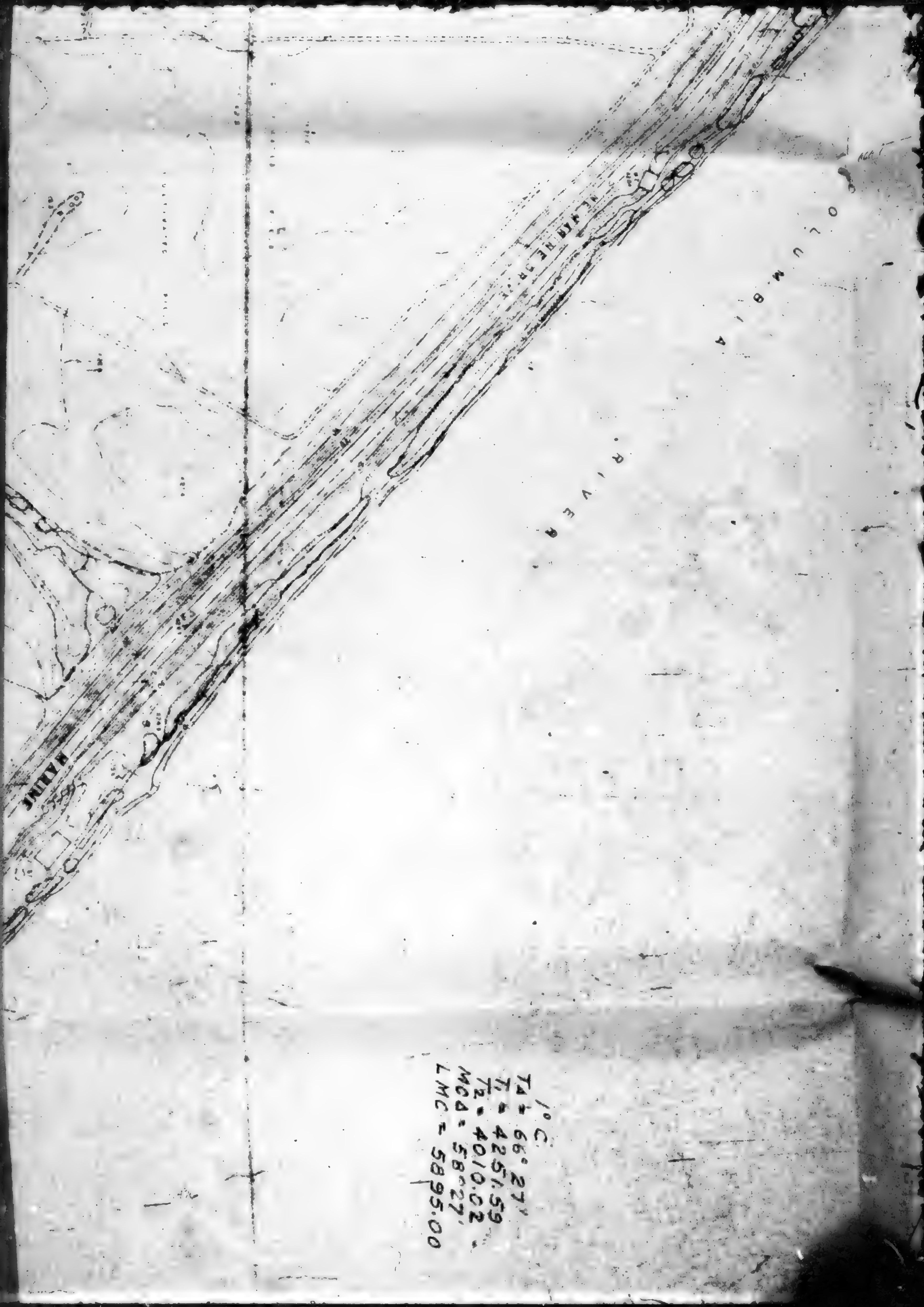
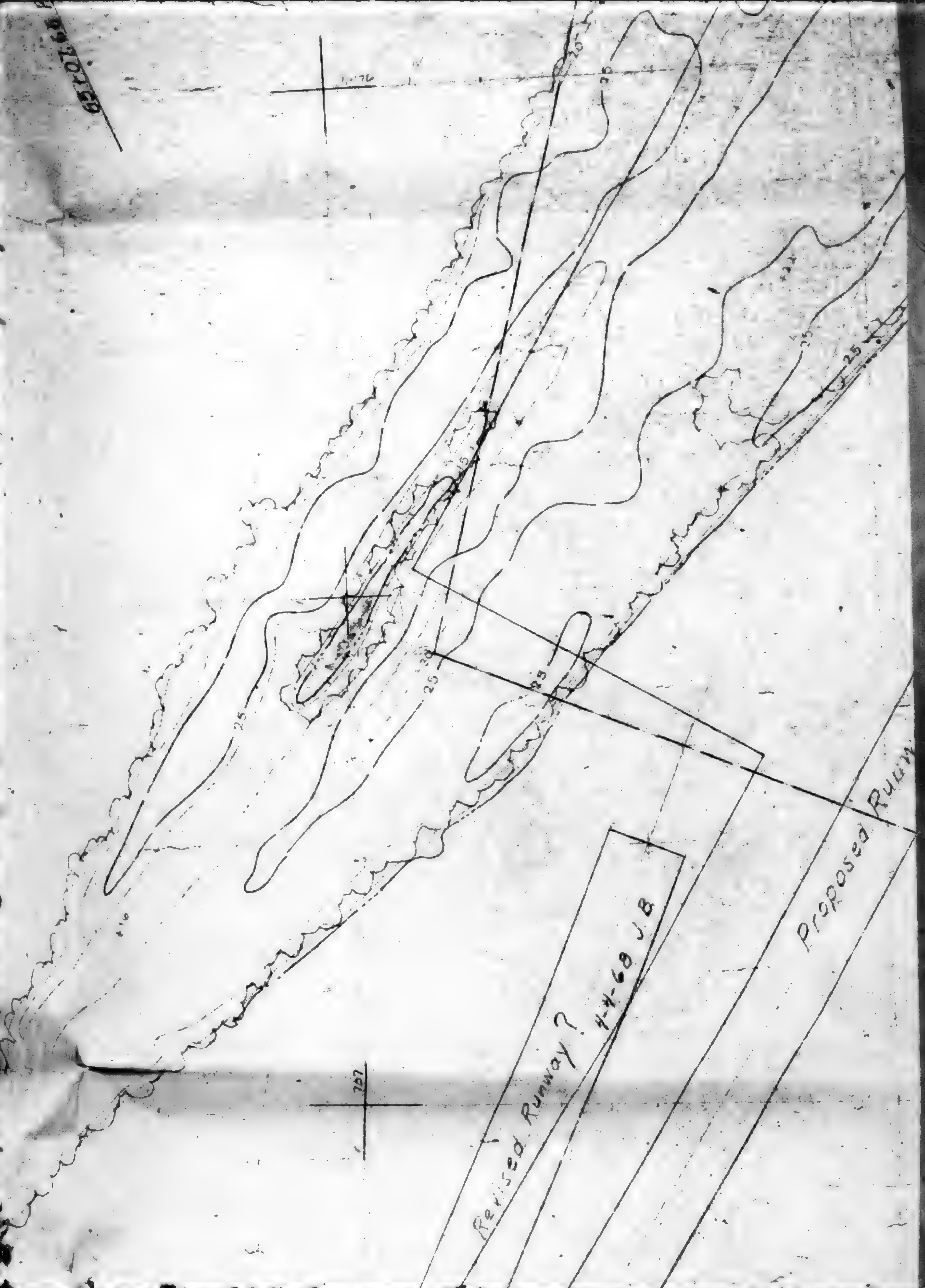
URBAN DESIGN SECTION

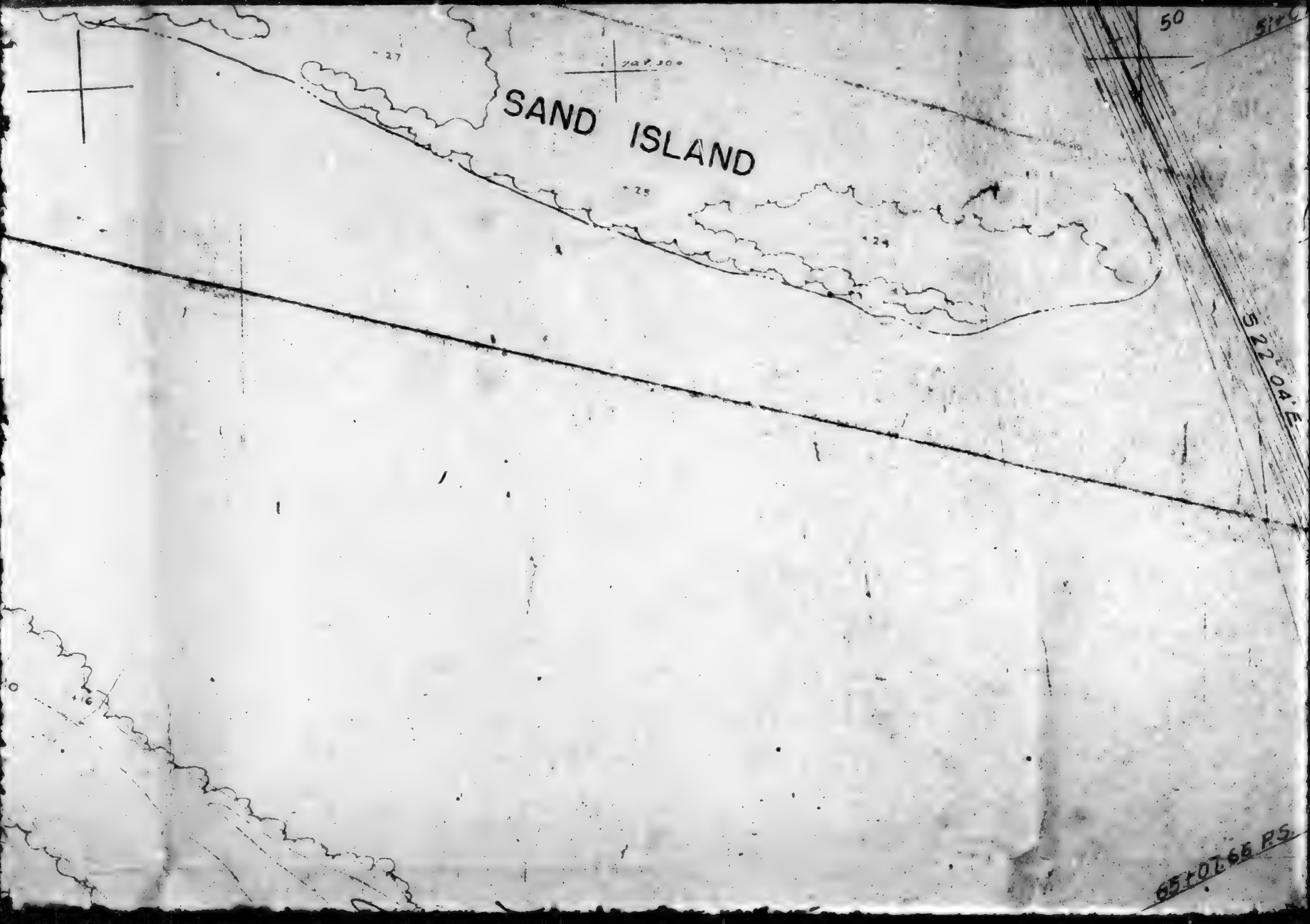

COLUMBIA RIVER
MARINE DRIVE
MARINE
1° C.
TΔ = 66° 27'
T1 = 4251.59
T2 = 4010.02
MCΔ = 58° 27'
LMC = 5895.00

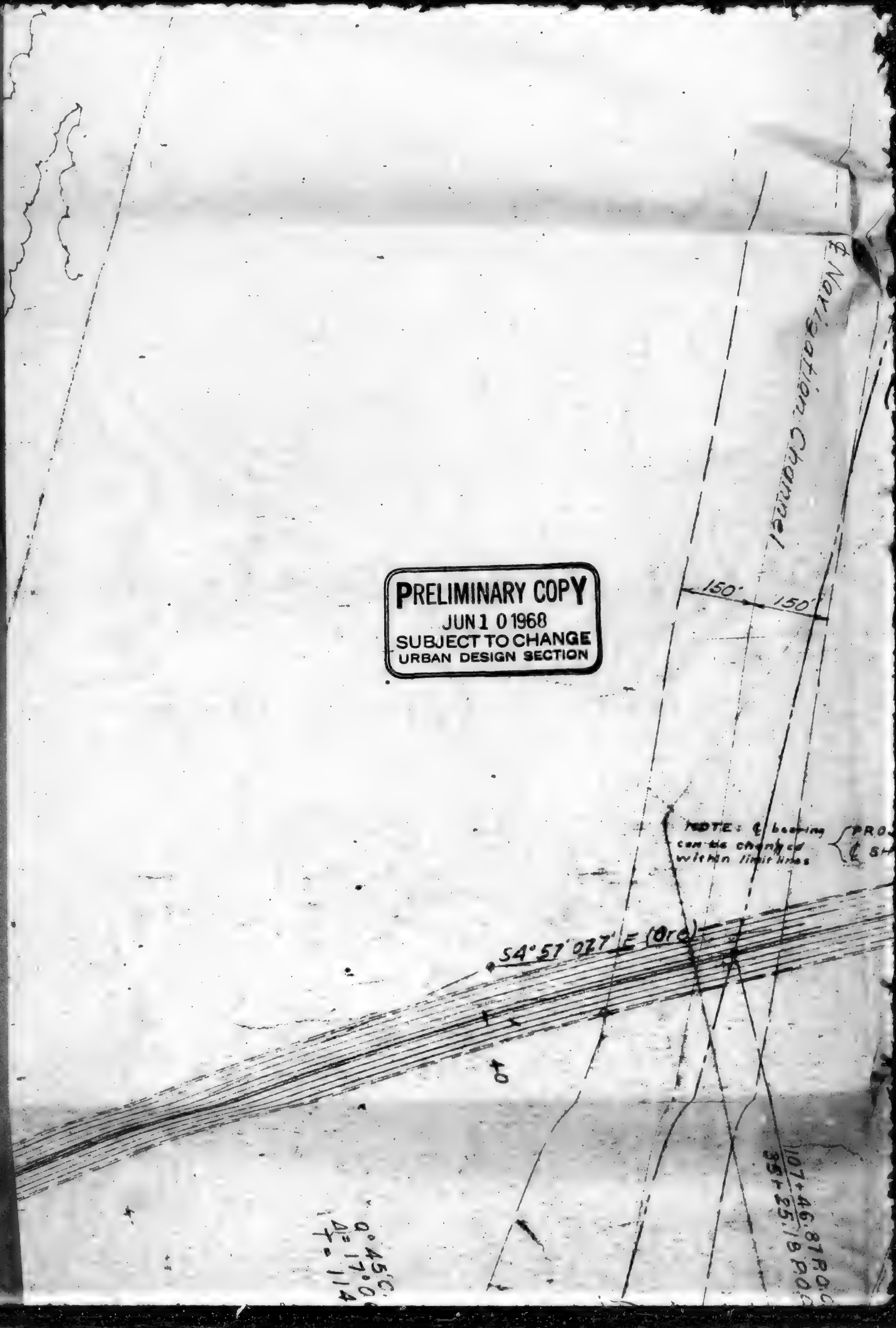
705
El.13
1,476,070

PRELIMINARY COPY
JUN 1 0 1968
SUBJECT TO CHANGE
URBAN DESIGN SECTION

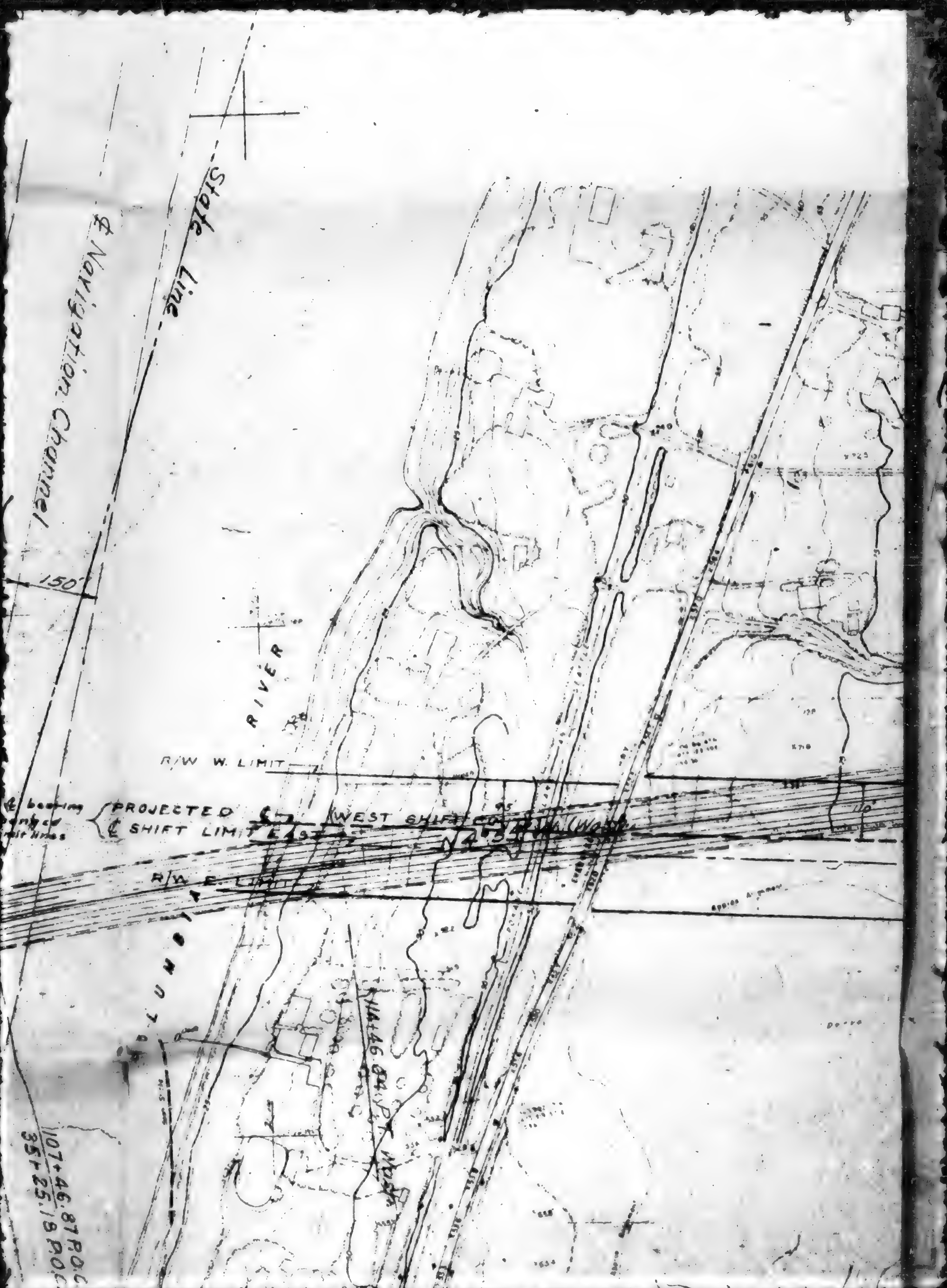


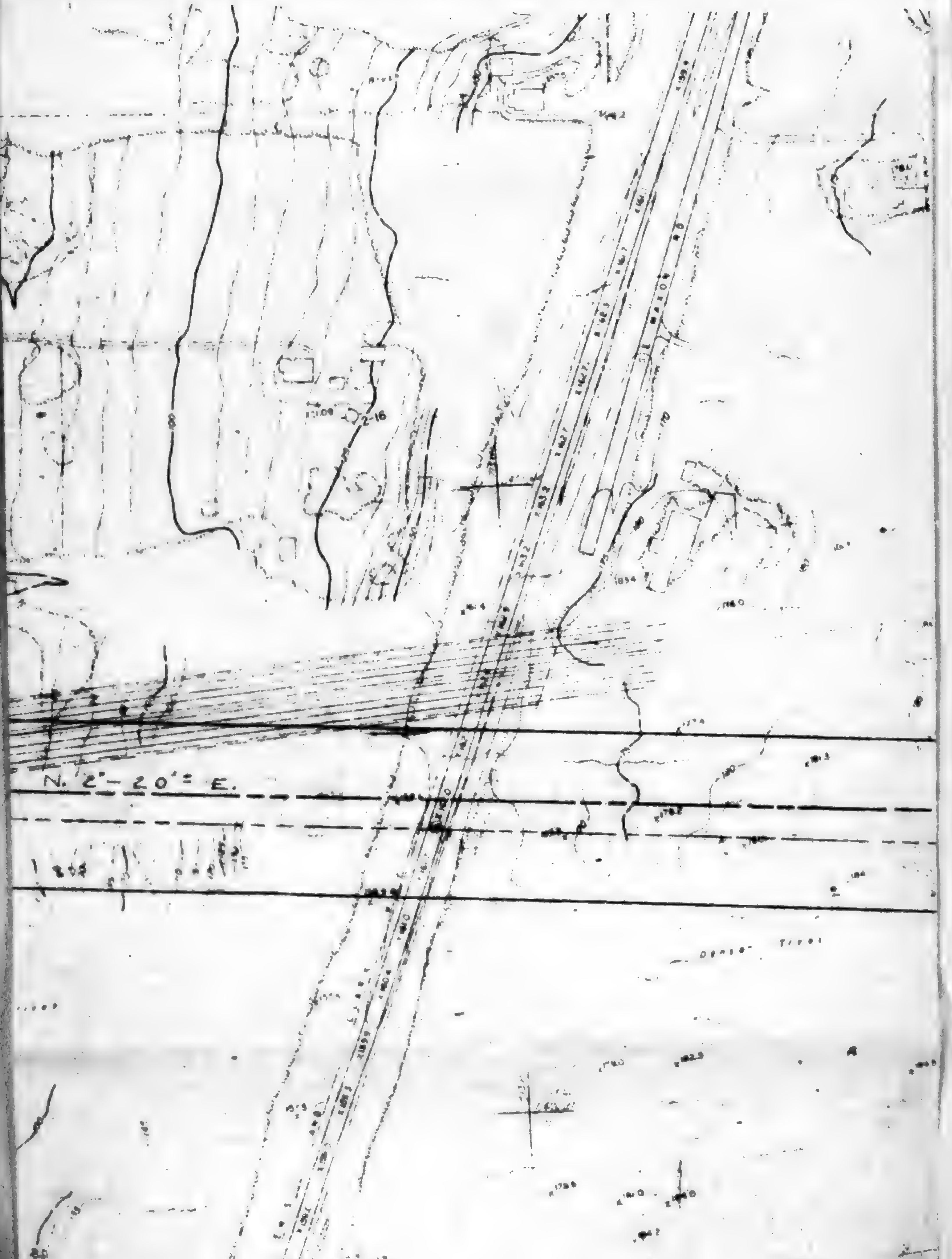
1.76
25
25
25
30
25
25
15
25
107
Proposed Runw
Revised Runway ?
4-4-68 J.B

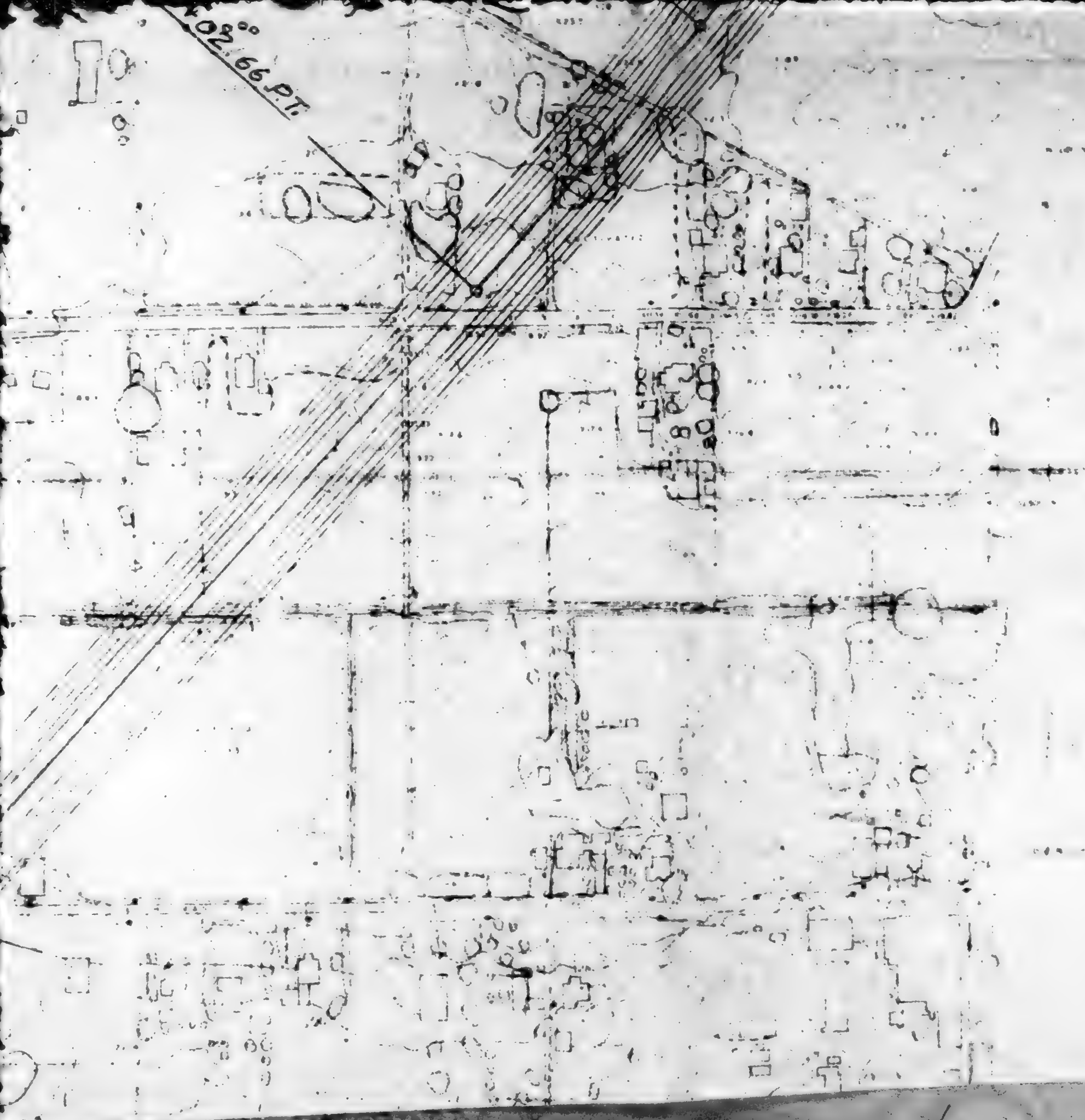

SAND ISLAND
27
25
24
16
50
51+
S 22° 04' E
65+01.66 P.S.

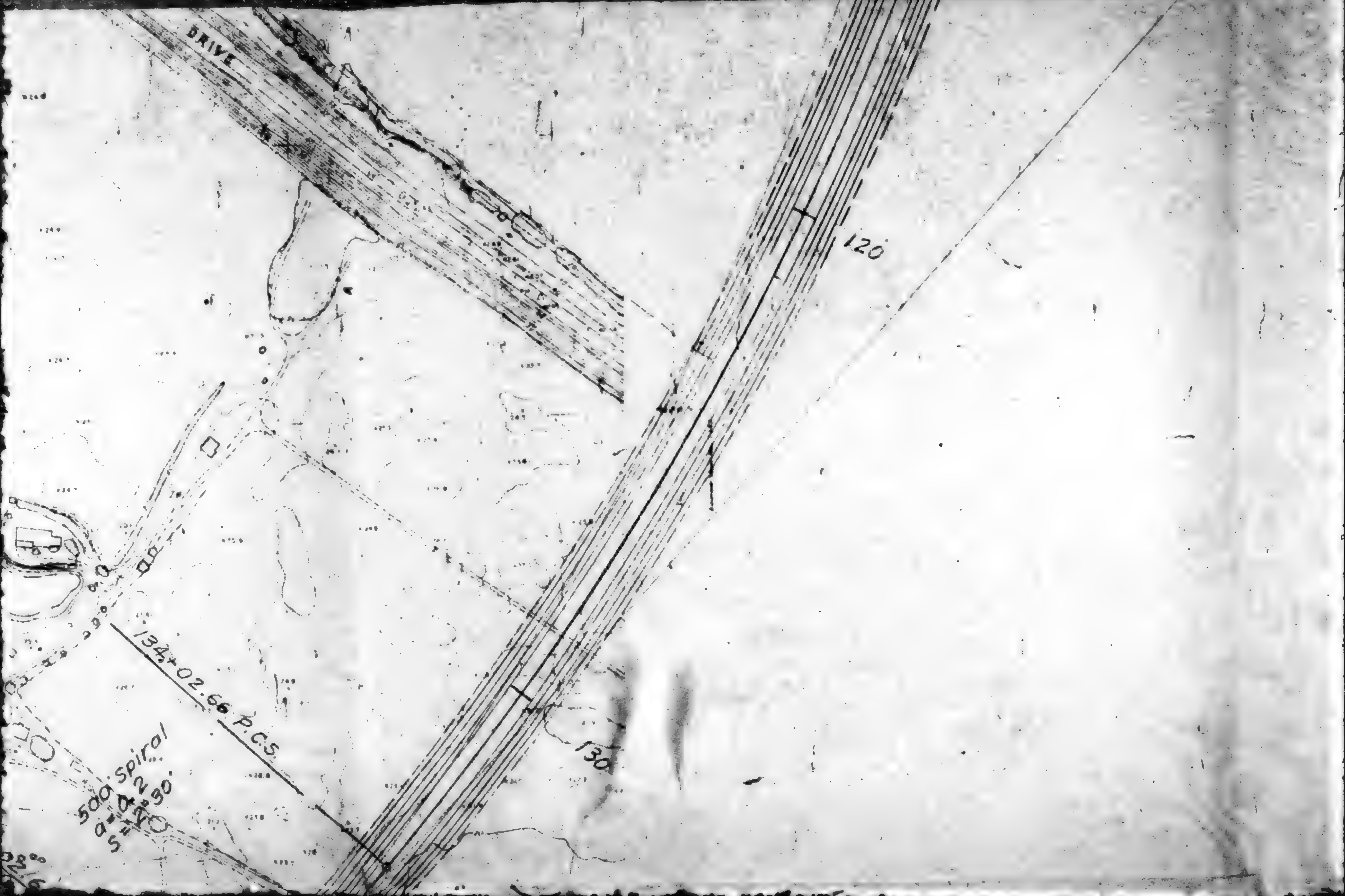

℄ Navigation Channel
150'
150'
NOTE: ℄ bearing can be changed within limit lines
PRO
℄ SH
S4°57'02.7"E (Brg)
107+46.87 P.O.C
35+25.18 P.O.C
0°45'C
Δ=17°0
T=114

PRELIMINARY COPY
JUN 1 0 1968
SUBJECT TO CHANGE
URBAN DESIGN SECTION

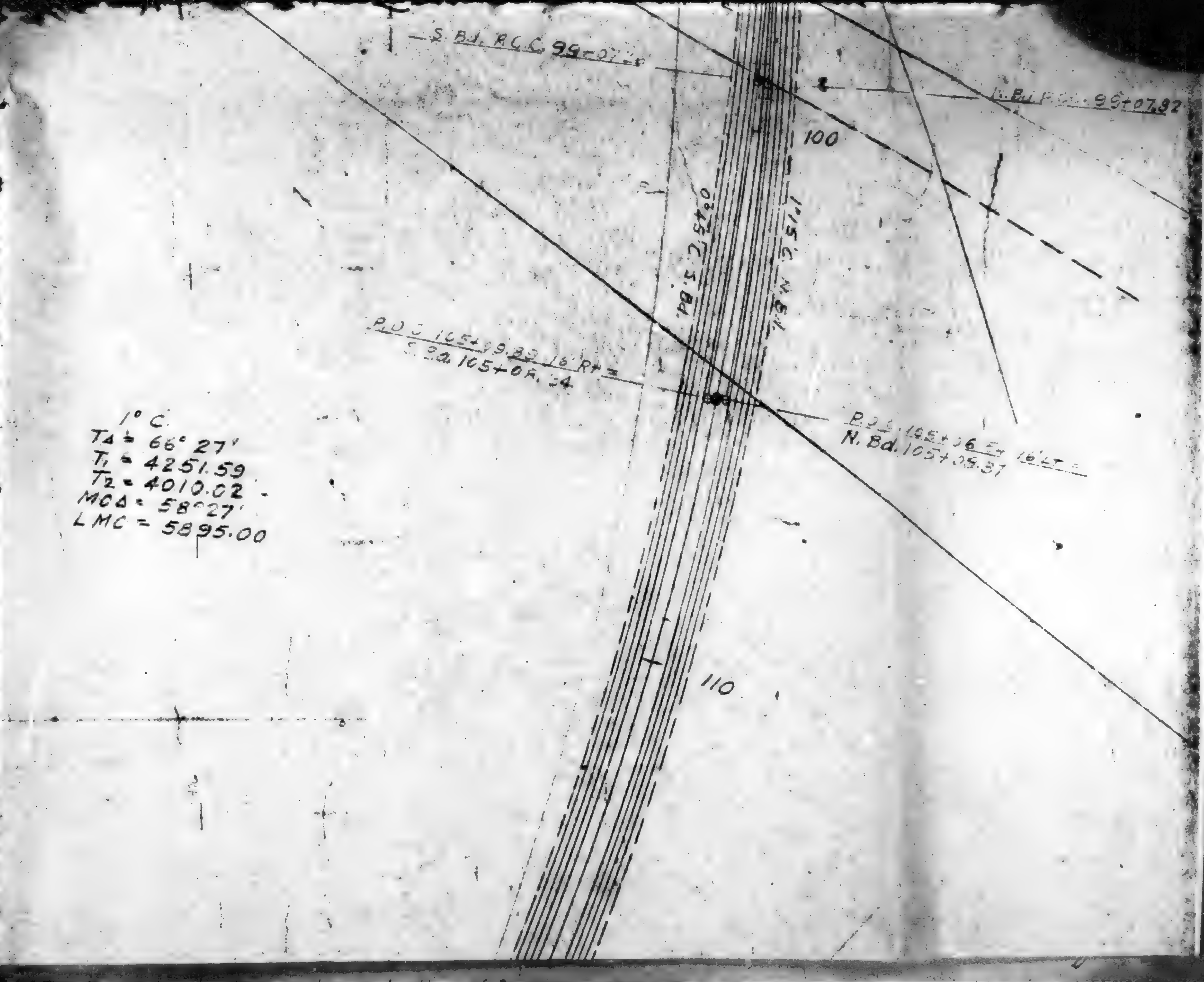

℄ Navigation Channel
State Line
150'
RIVER
COLUMBIA
R/W W. LIMIT
℄ bearing
PROJECTED ℄
WEST SHIFT LIMIT
℄ SHIFT LIMIT EAST
R/W E. LIMIT
110'
114+46.84 P.T.
107+46.87 P.O.C.
35+25.19 P.O.C.

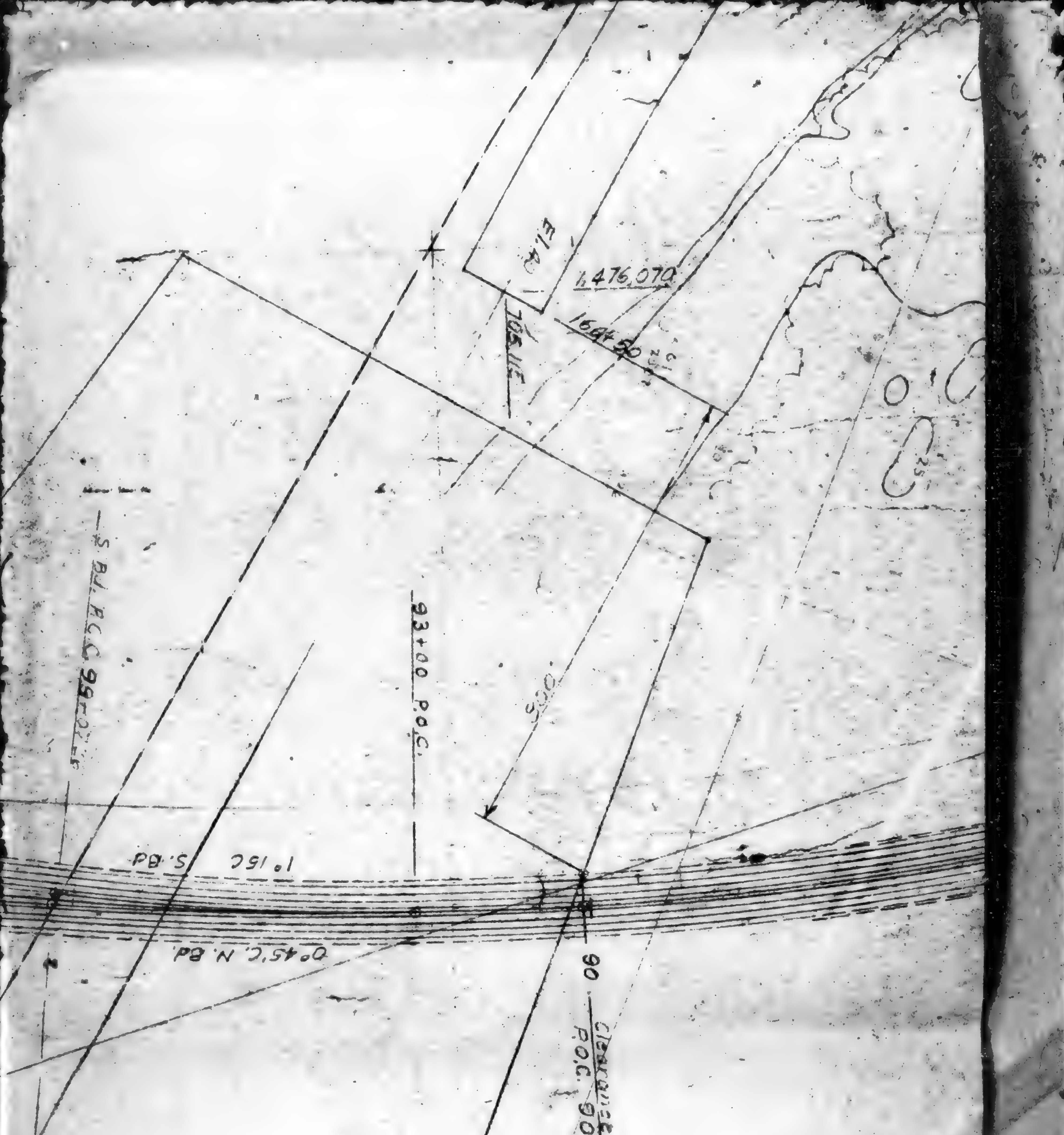

N. 2° - 20' E.
DENSE TREES

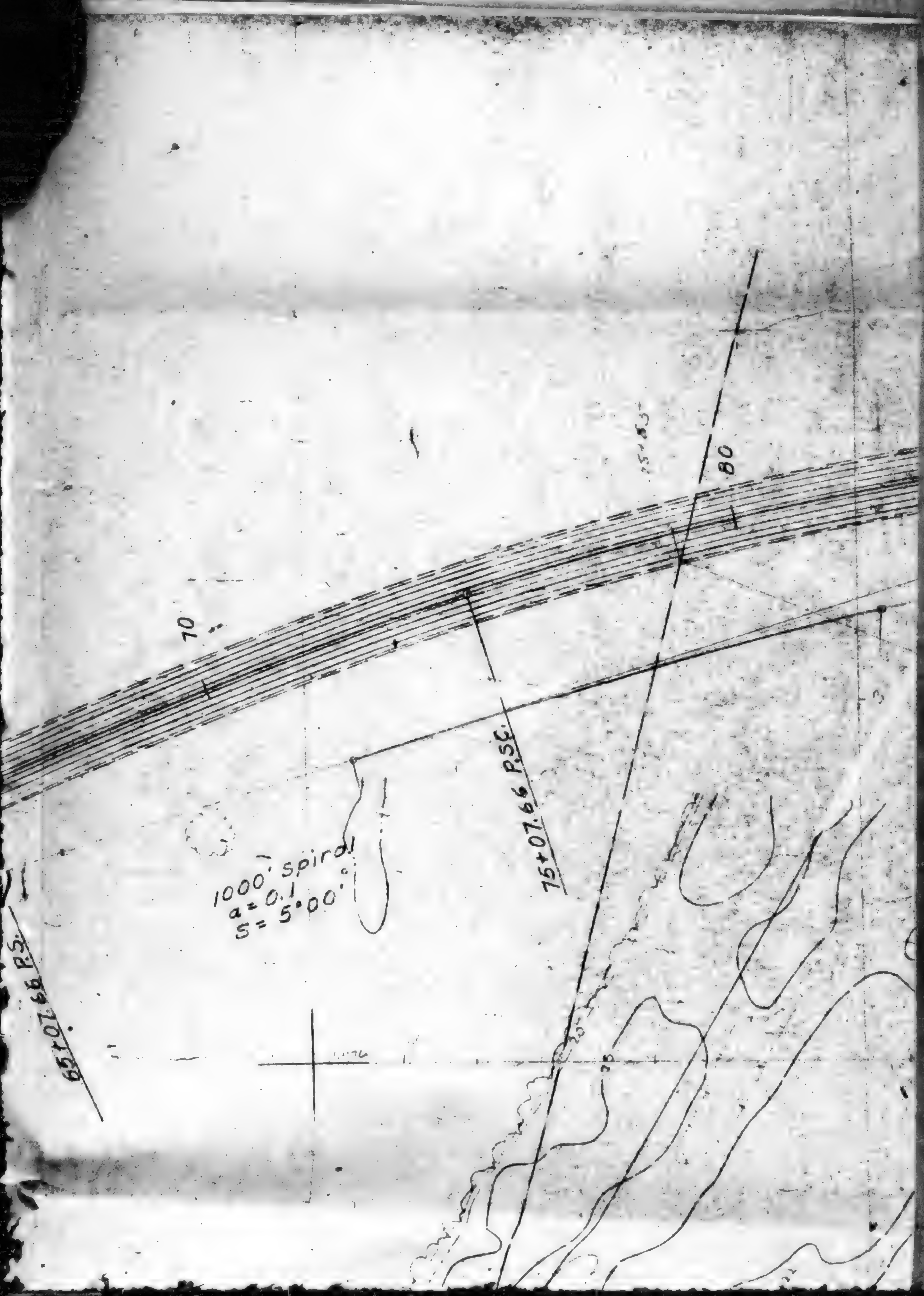

+02.66 P.T.



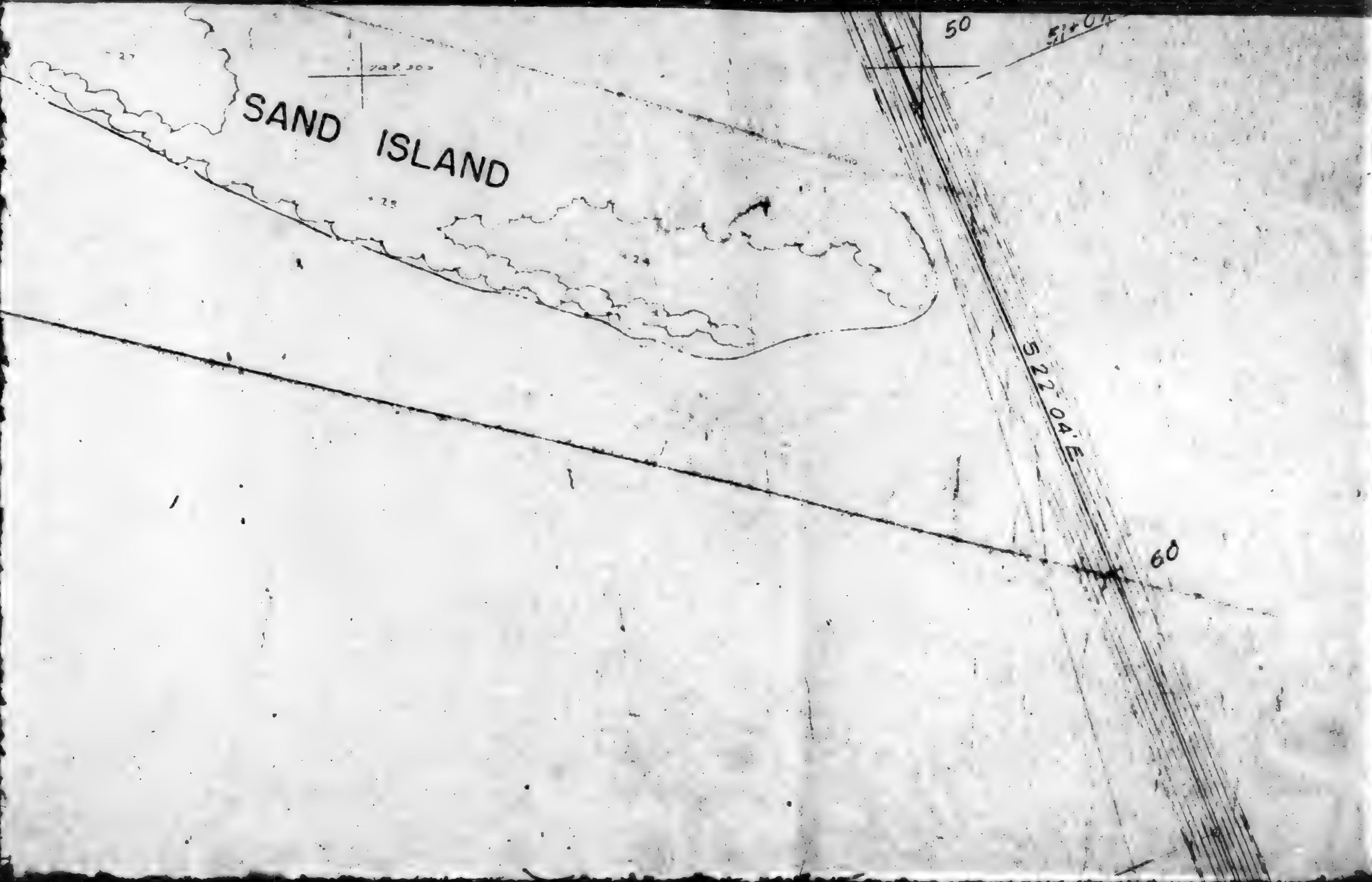
DRIVE
120
130
134+02.66 P.C.S.
500' spiral
a = 2°30'

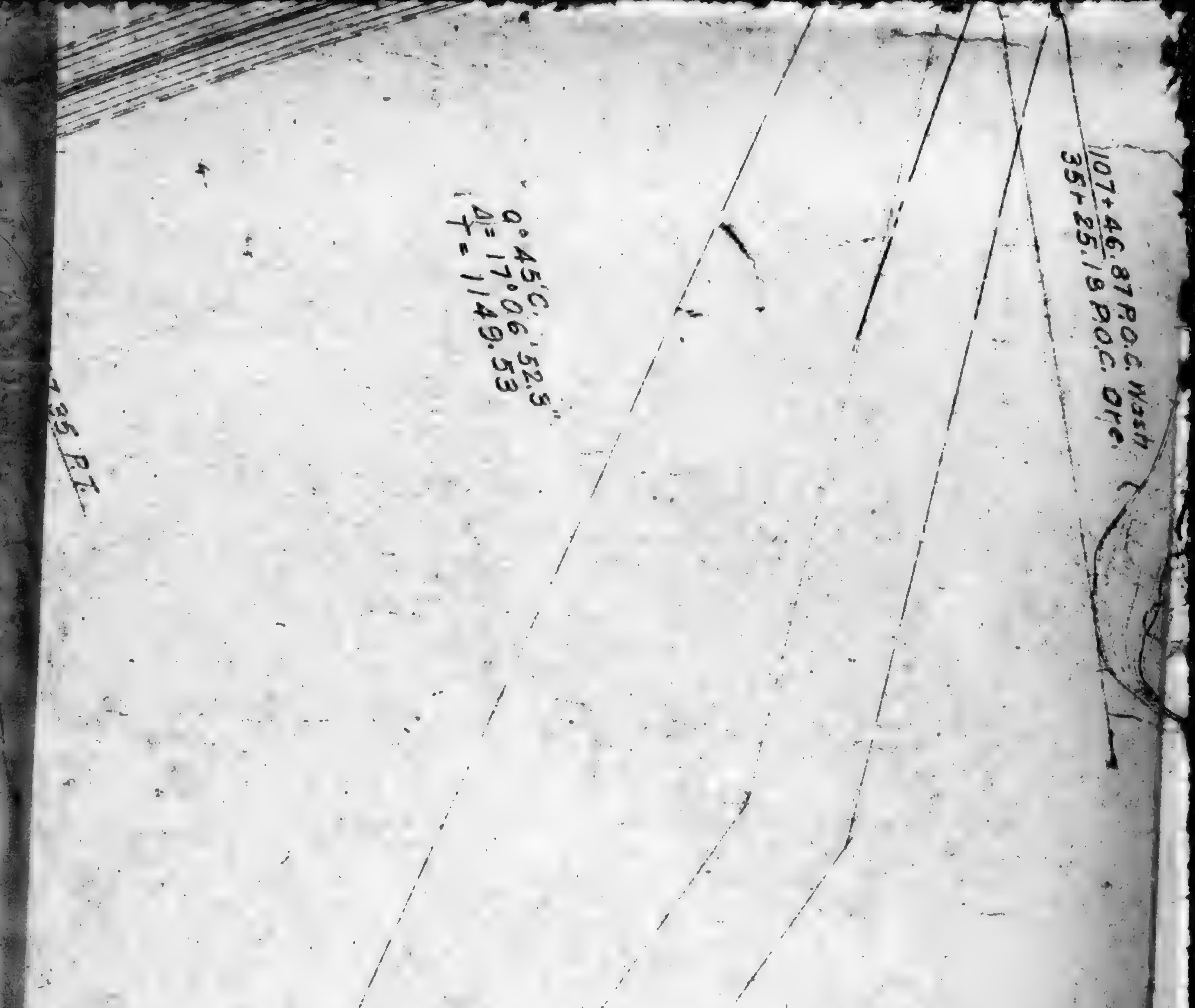

S. Bd. P.C.C. 99+07.--
N. Bd. P.C.C. 99+07.82
100
0°45' C. S. Bd.
1°15' C. N. Bd.
P.O.C. 105+99.83 16' Rt =
S. Bd. 105+08.24
P.O.C. 105+36.5 16' Lt =
N. Bd. 105+35.37
1° C.
TΔ = 66° 27'
T1 = 4251.59
T2 = 4010.02
MCΔ = 58° 27'
LMC = 5895.00
110

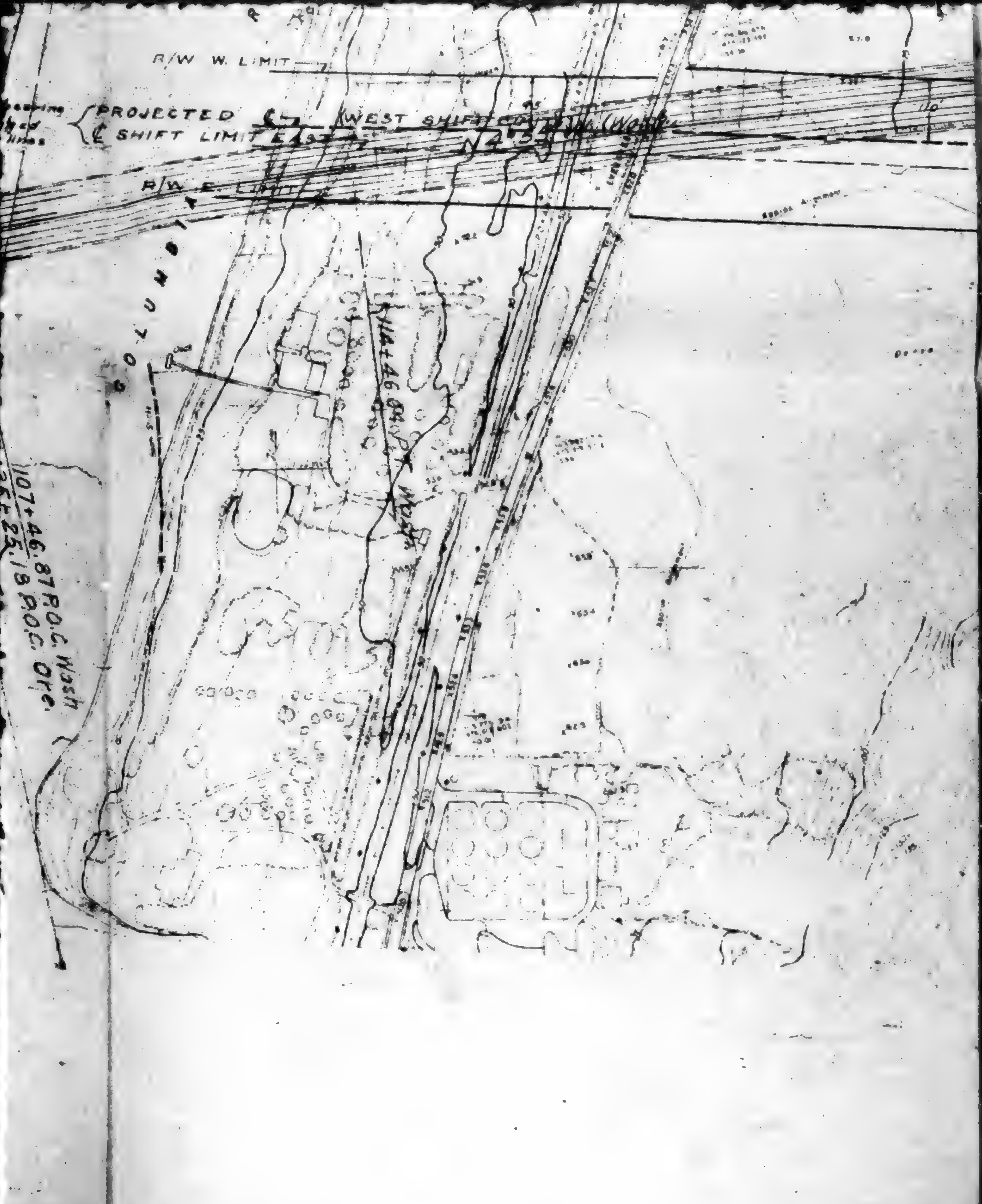

E 1,4
1,476,070
705,115
1694+50
S B.L. P.C.C. 99+07
93+00 P.O.C.
500
1°15C S.Bd
0°45'C. N. Bd
90
Clearance Point 54' Rt
P.O.C. 90+14.31
N.B.L. P.C.C. 95+07.92

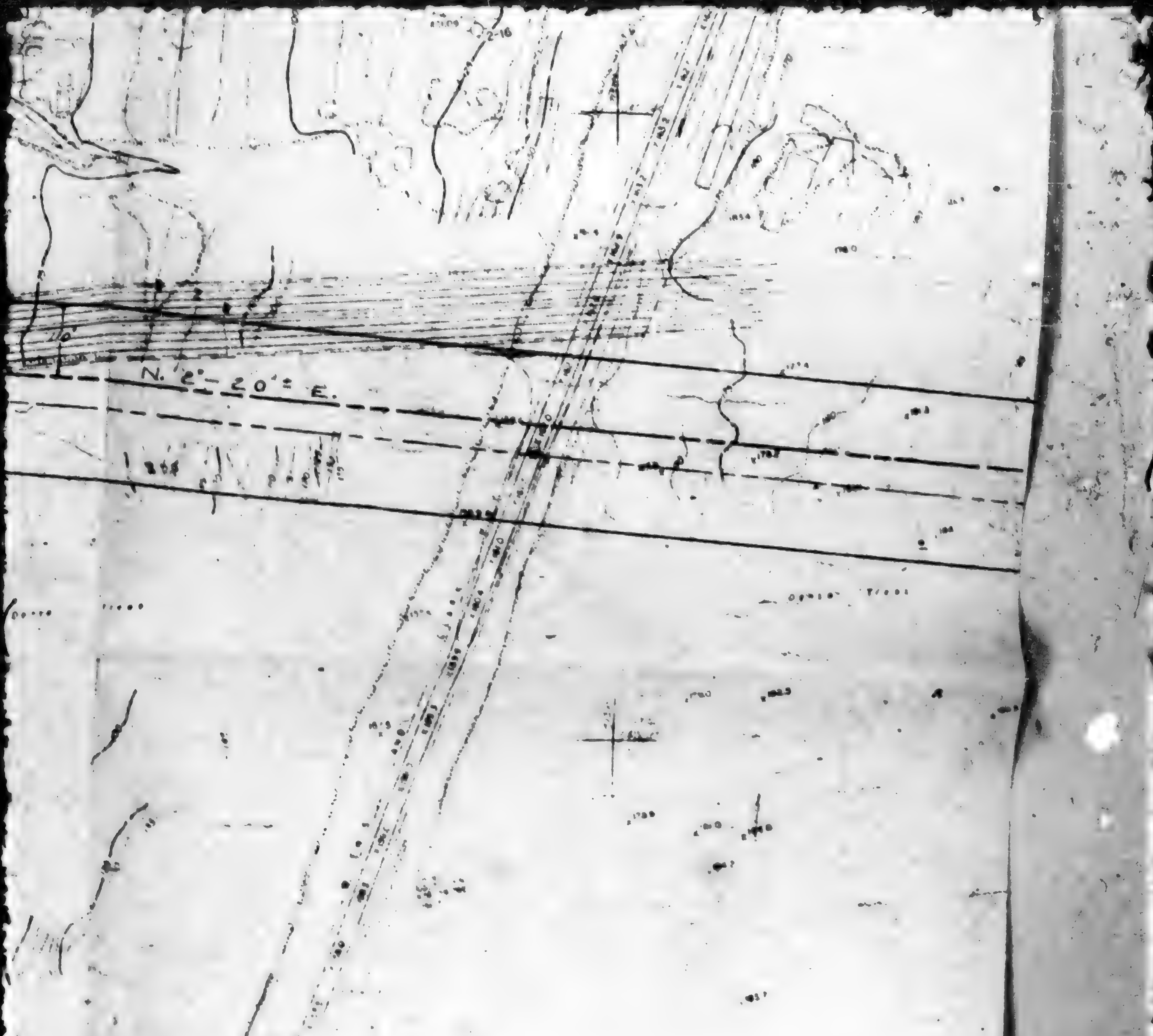

1000' Spiral
a=0.1
S= 5°00'
65+07.66 P.S.
75+07.66 P.S.C.
70
80
75+83

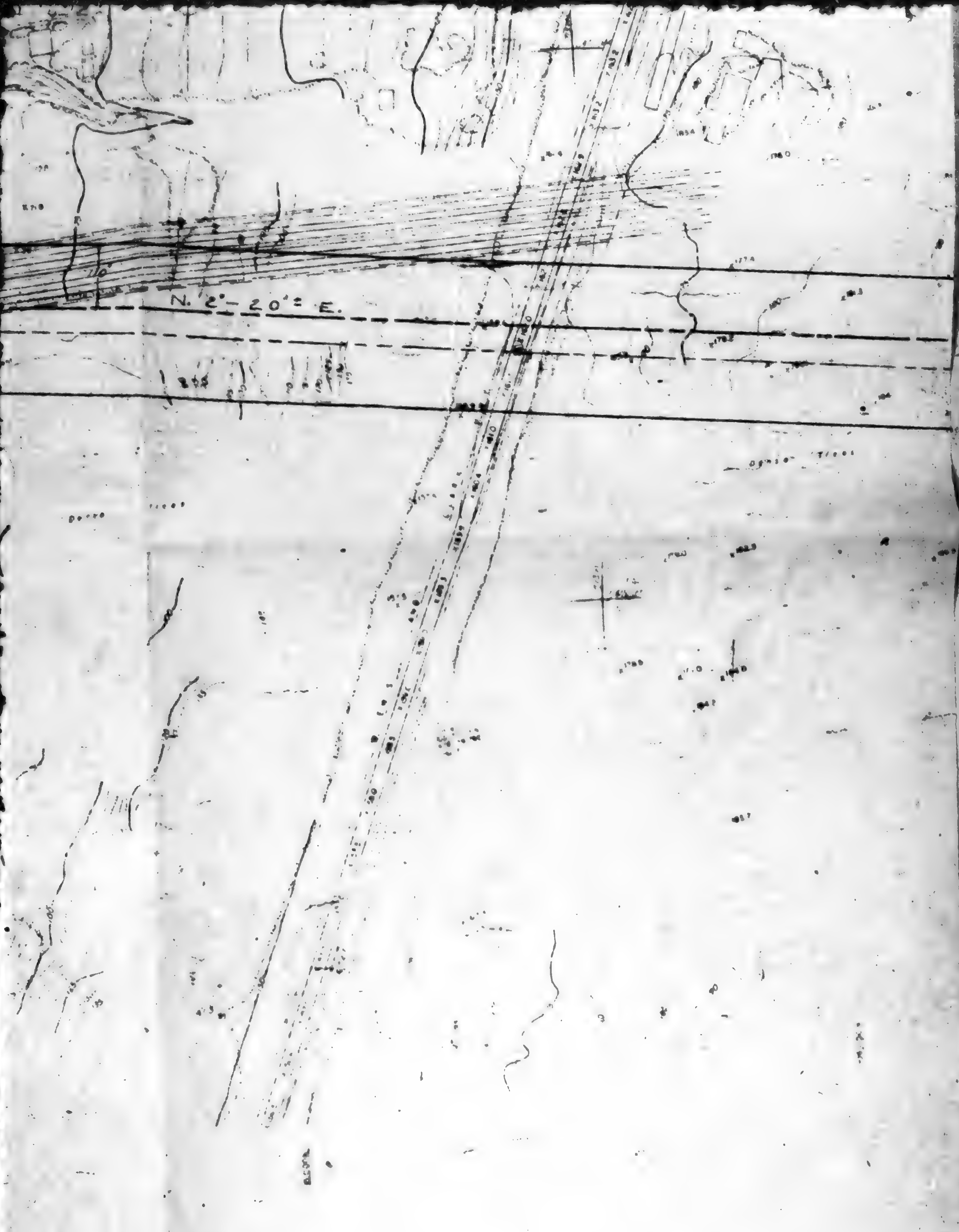
S22°04'E
60
50
51+0
101.98 P.S.


SAND ISLAND
50
S 22°04'E
60

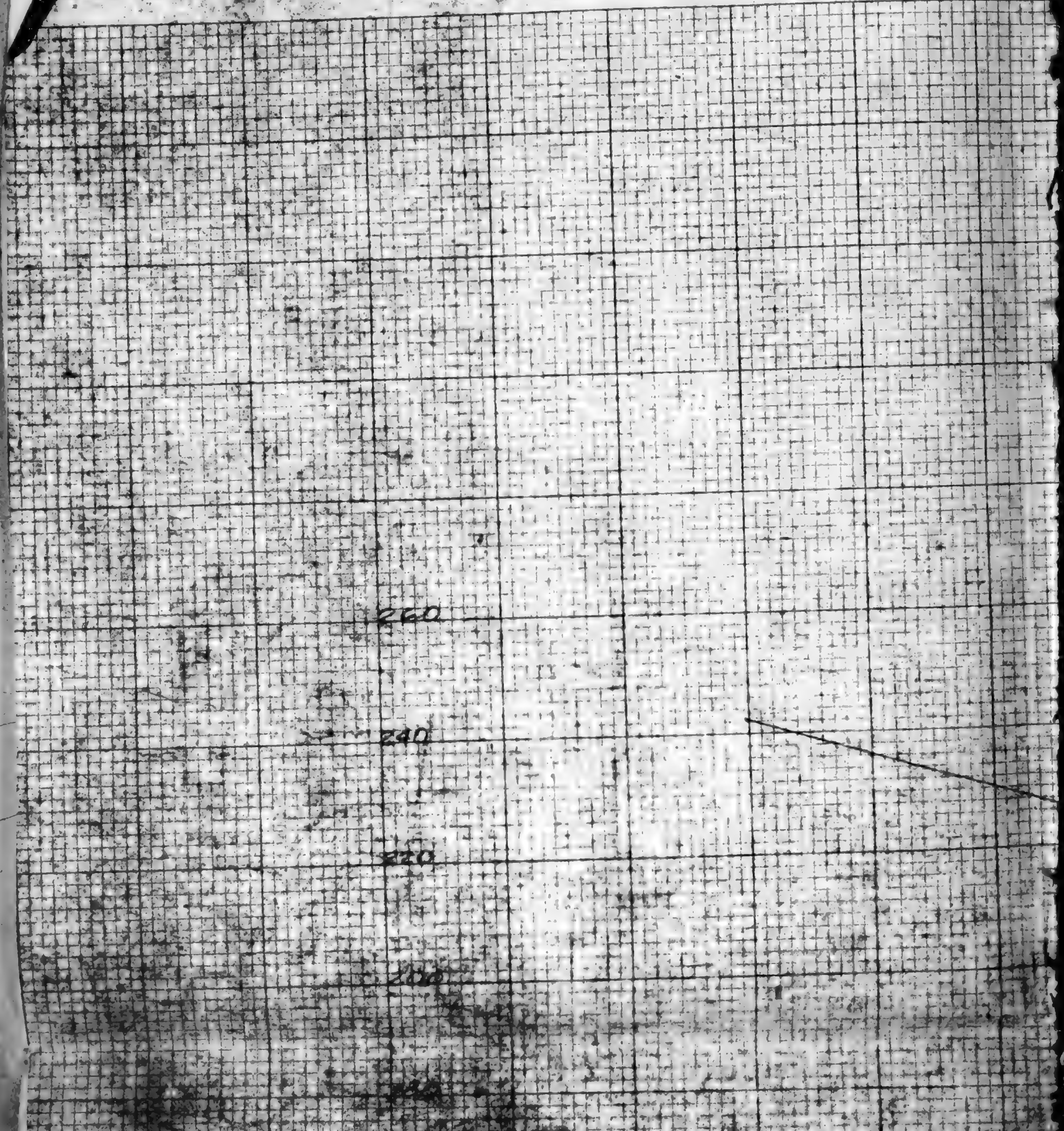

0°45'C.
Δ= 17°06'52.5"
T= 1149.53
1107+46.87 P.O.C. Wash
35+25.18 P.O.C. Ore.
135 P.T.


R/W W. LIMIT
PROJECTED ℄ WEST SHIFT
℄ SHIFT LIMIT EAST
N 45°
R/W E. LIMIT
COLUMBIA
114+46.84 P.
Wash
107+46.87 P.O.C. Wash
25+25.18 P.O.C. Ore.
110

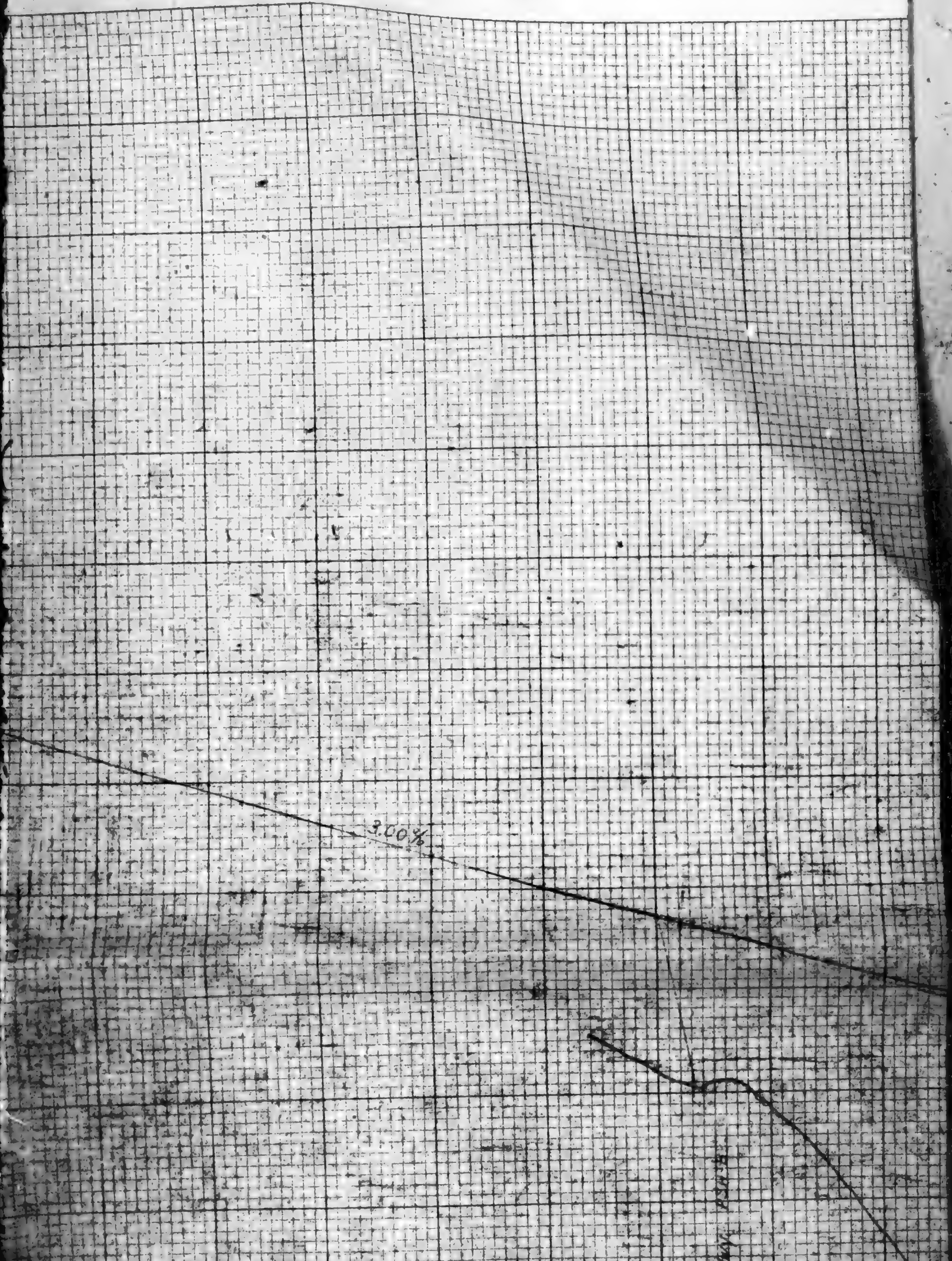

N. 2°-20' E.
2-16

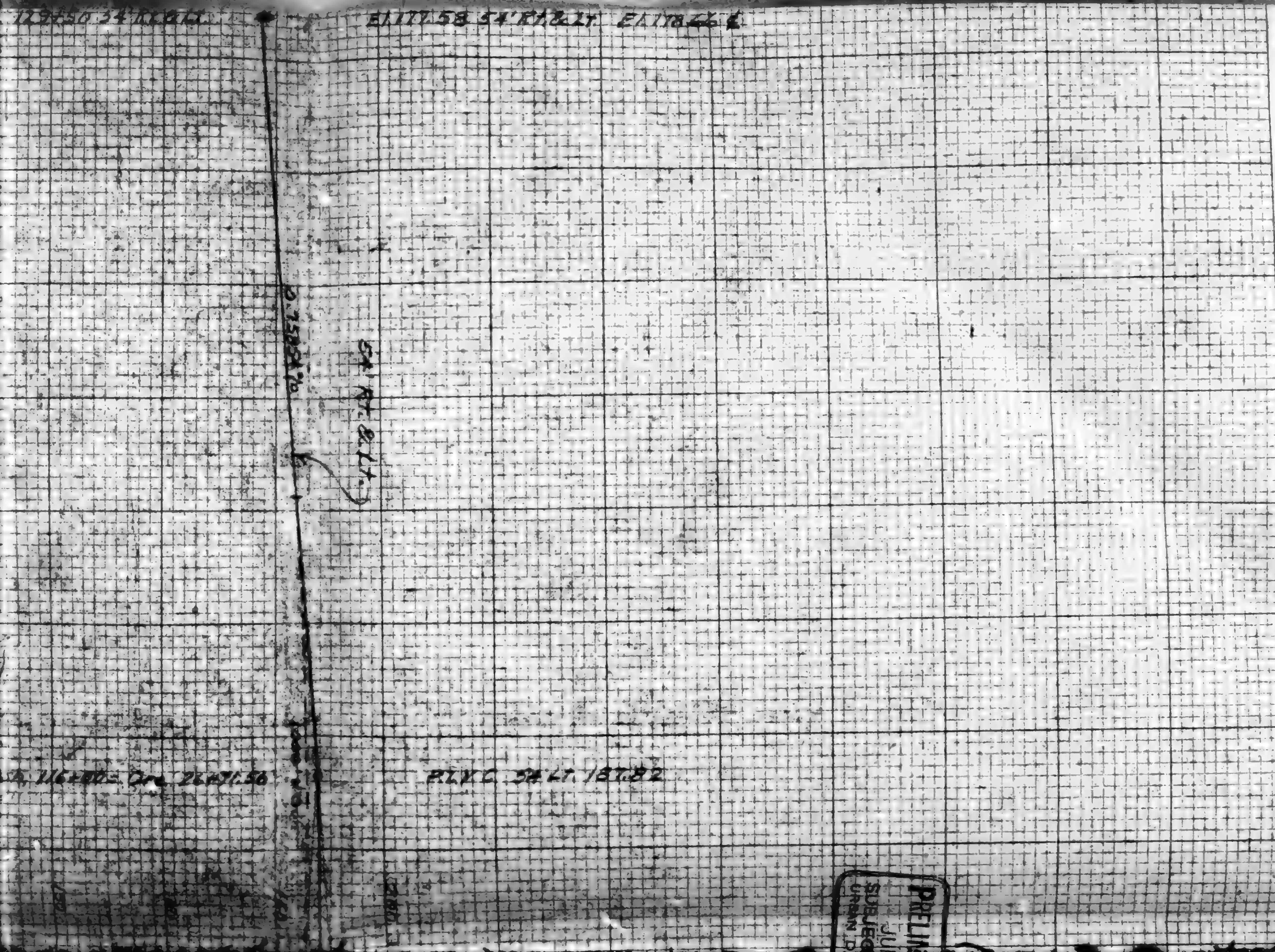

N. 2°-20' = E.

K&E STANDARD © CROSS SECTION
10X10 TO THE INCH



KEUFFEL & ESSER CO.
MADE IN U.S.A.

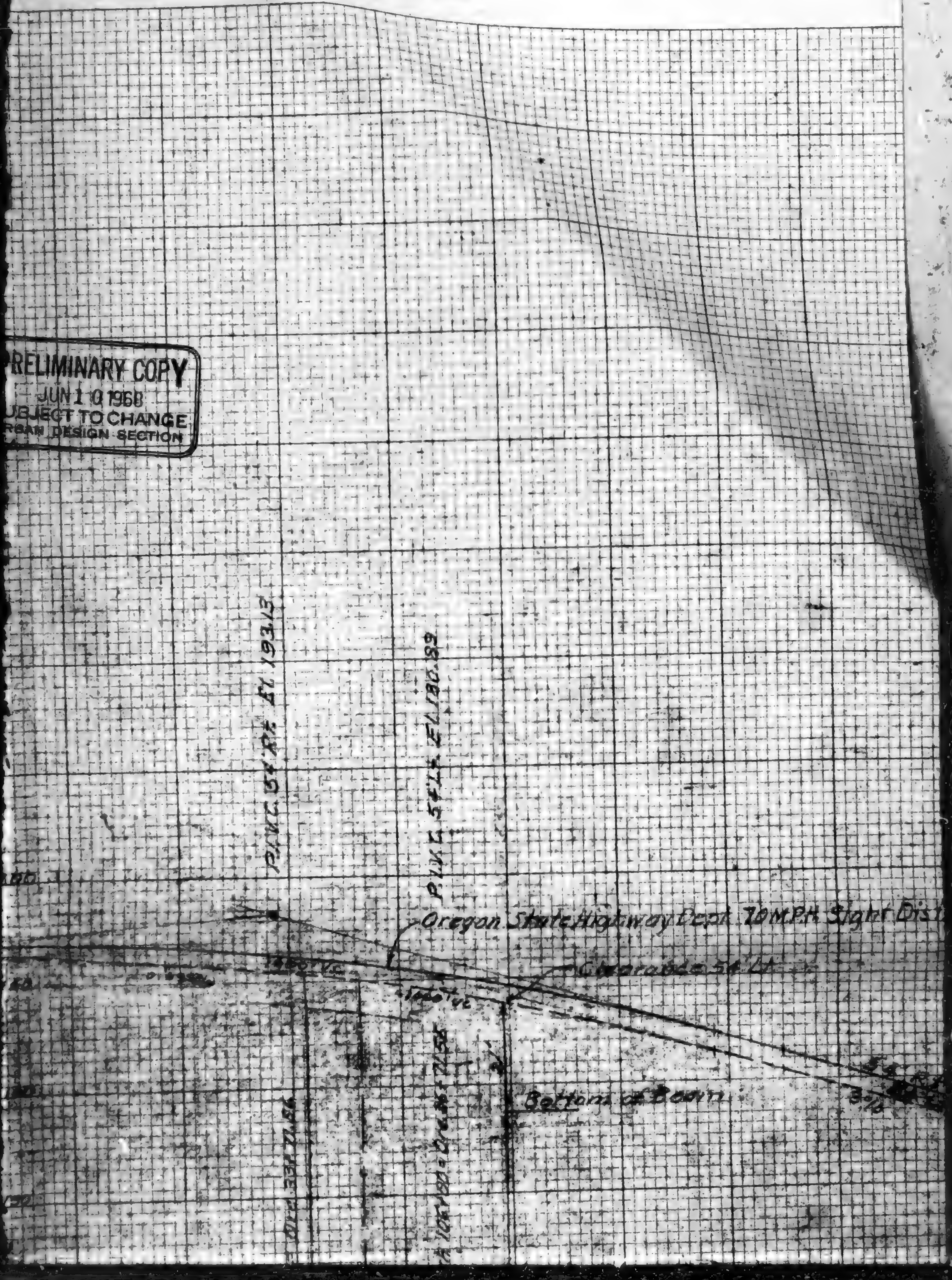


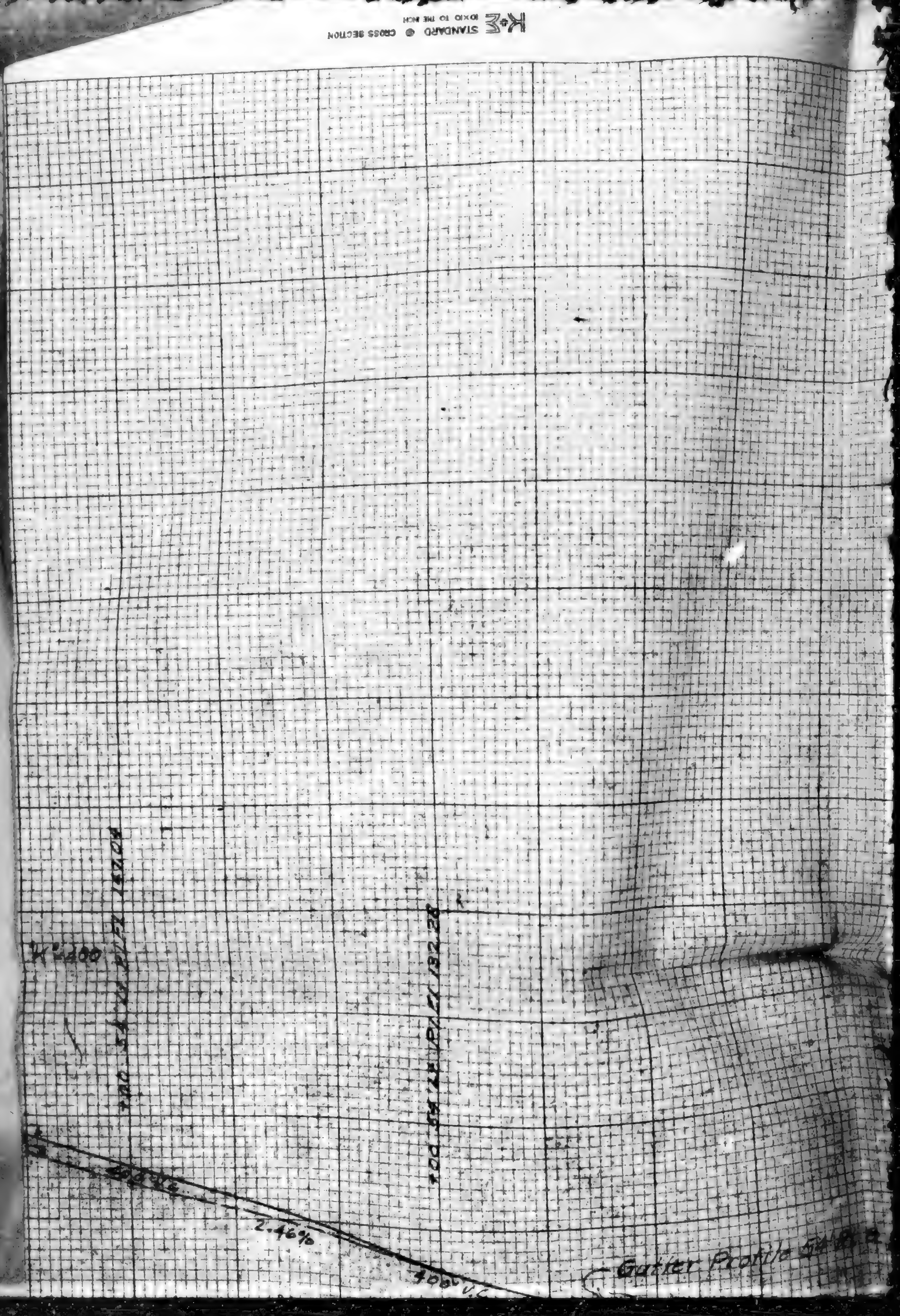

1773.50 54' Rt. & Lt.
El. 1777.58 54' Rt. & Lt. El. 1778.66 ℄
0.7585%
54' Rt. & Lt.
Sta. 116+00 = Orig. 26+31.56
P.I.V.C. 54' Lt. 1787.82
1780
1760
1750

PRELIM
JU
SUBJEC
URBAN D

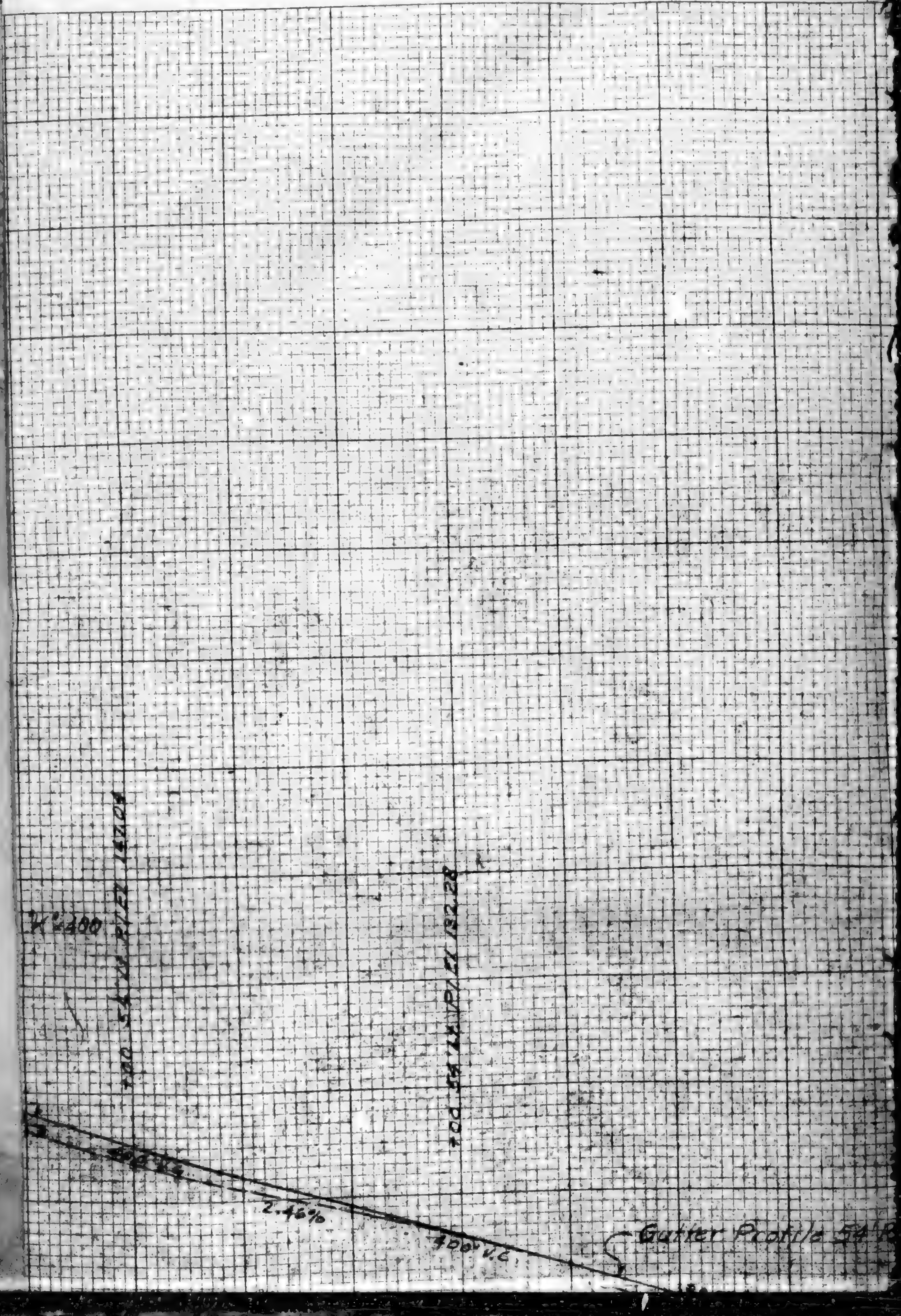
K+E STANDARD CROSS SECTION
10X10 TO THE INCH

PRELIMINARY COPY
JUN 10 1968
SUBJECT TO CHANGE
URBAN DESIGN SECTION


KEUFFEL & ESSER CO.
MADE IN U.S.A.
P.I.V.C. 54+ Rt. El. 193.13
P.I.V.C. 55+1_ El. 180.89
Oregon State Highway Dept. 70 M.P.H. Sight Dis
Clearance 5x Lt.
1600' V.C.
1600' V.C.
Bottom of Beam
3%
200
180
150

K&E STANDARD CROSS SECTION 10X10 TO THE INCH
K=200
PVI El 137.04
PVI El 132.28
2.46%
400' V.C.
Gutter Profile

K&E STANDARD CROSS SECTION 10x10 TO THE INCH


K=400
400 54 10 PI EL 147.04
400 59 11 PI EL 132.28
2.46%
400' V.C.
Gutter Profile 54' R

PRELIMINARY COPY
JUN 1 0 1968
SUBJECT TO CHANGE
URBAN DESIGN SECTION

Limit of Embankment No 4

STANDARD CROSS SECTION

Not Established

KEUFFEL & ESSER CO.
MADE IN U.S.A.

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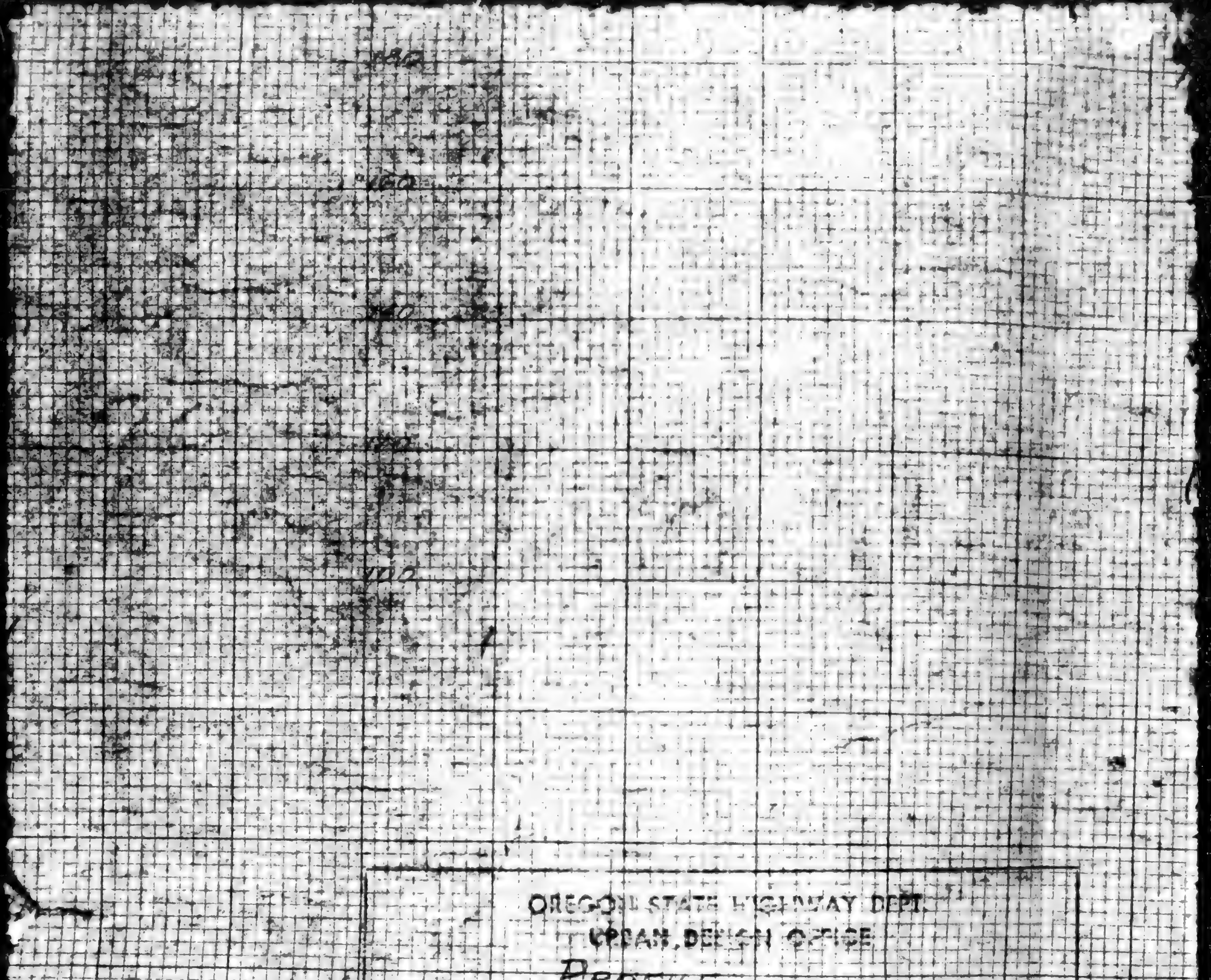
JUN 1 0 1968
SUBJECT TO CHANGE
URBAN DESIGN SECTION

KEUFFEL & ESSER CO.
MADE IN U.S.A.



OREGON STATE HIGHWAY DEPT.
URBAN, DESIGN OFFICE

PROFILE

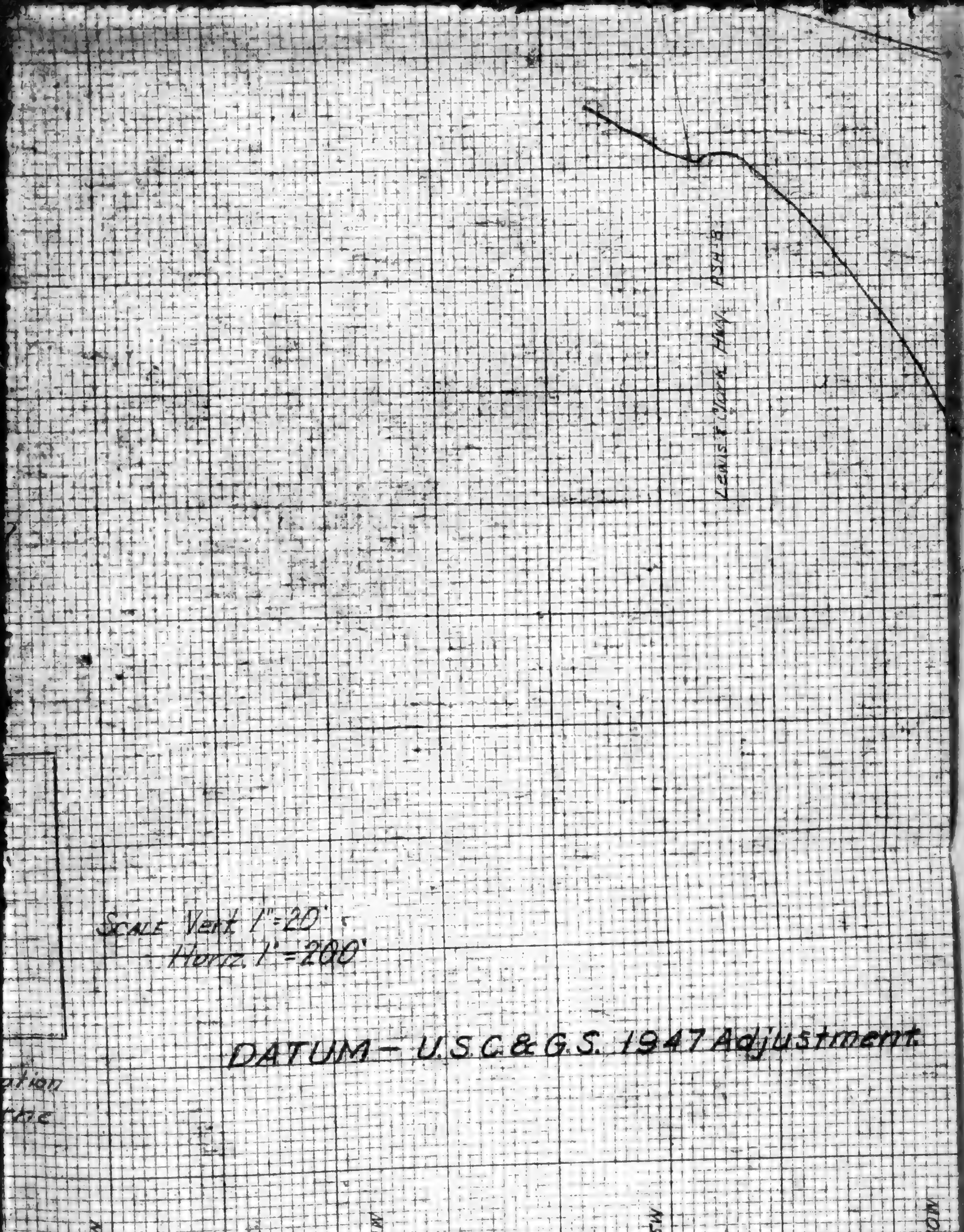
PROJECT: I205 FRWY.

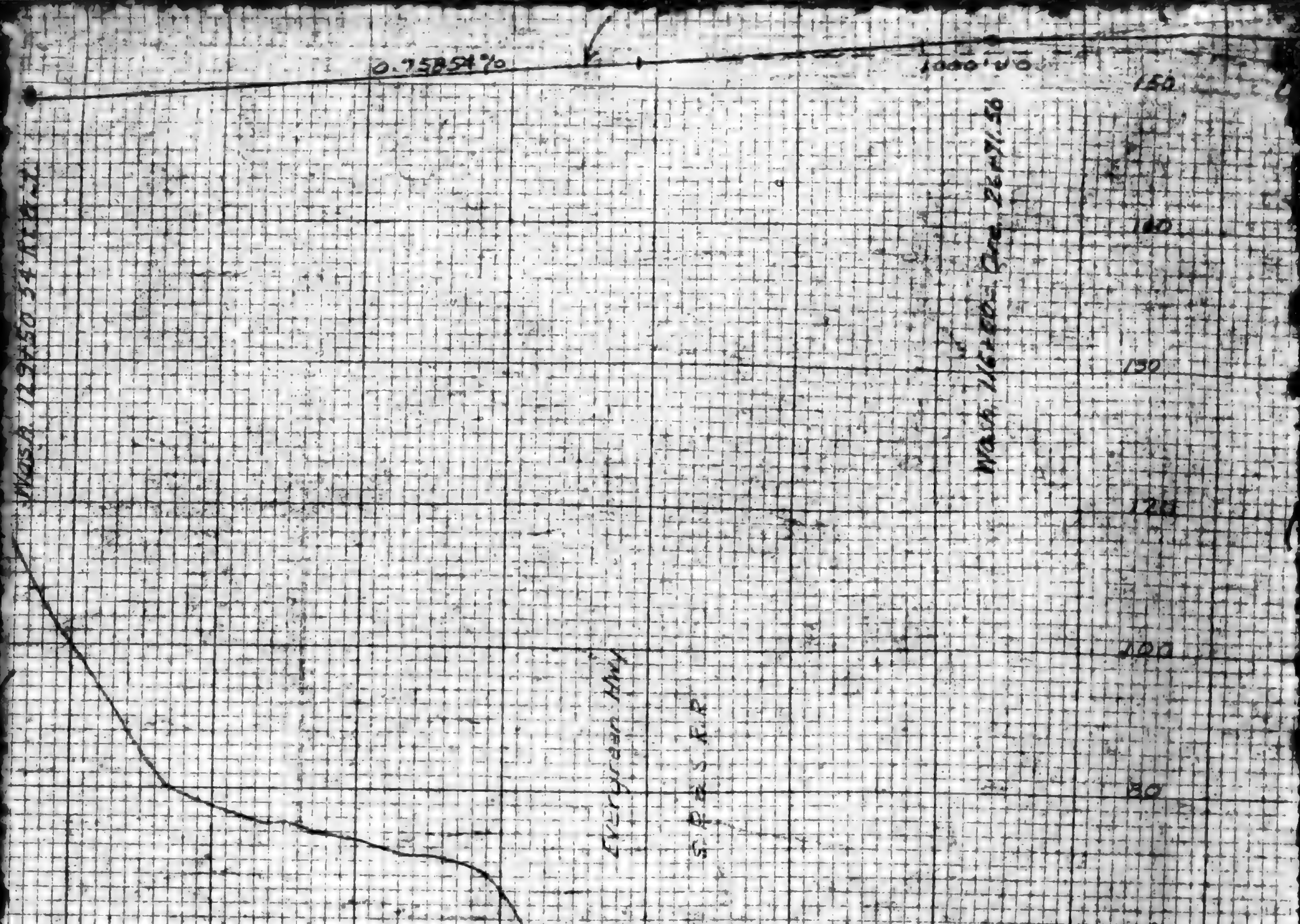
SECTION: Columbia River Crossing

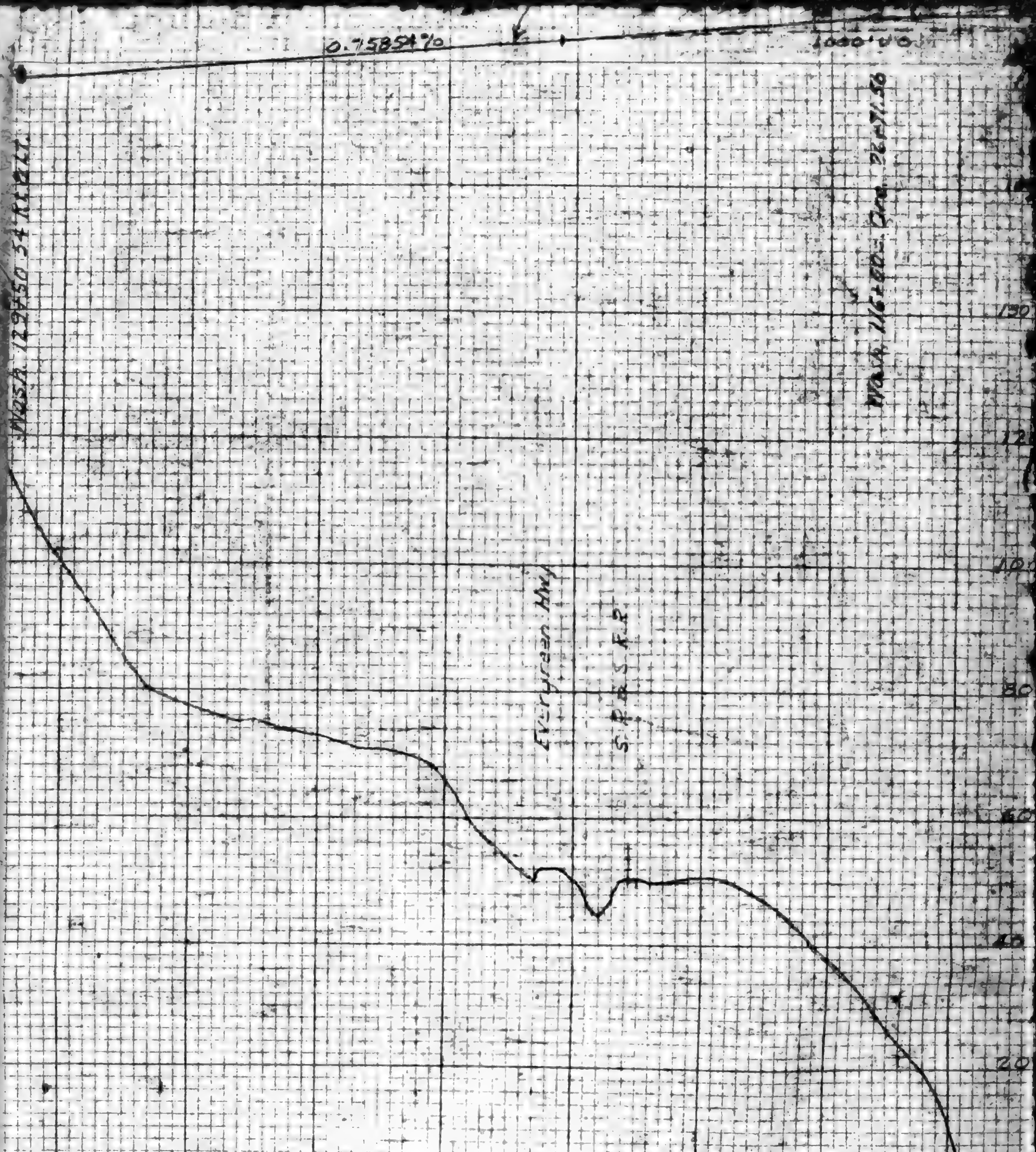
STATIONS: 150+00 WASH. TO 180+00 ORE.

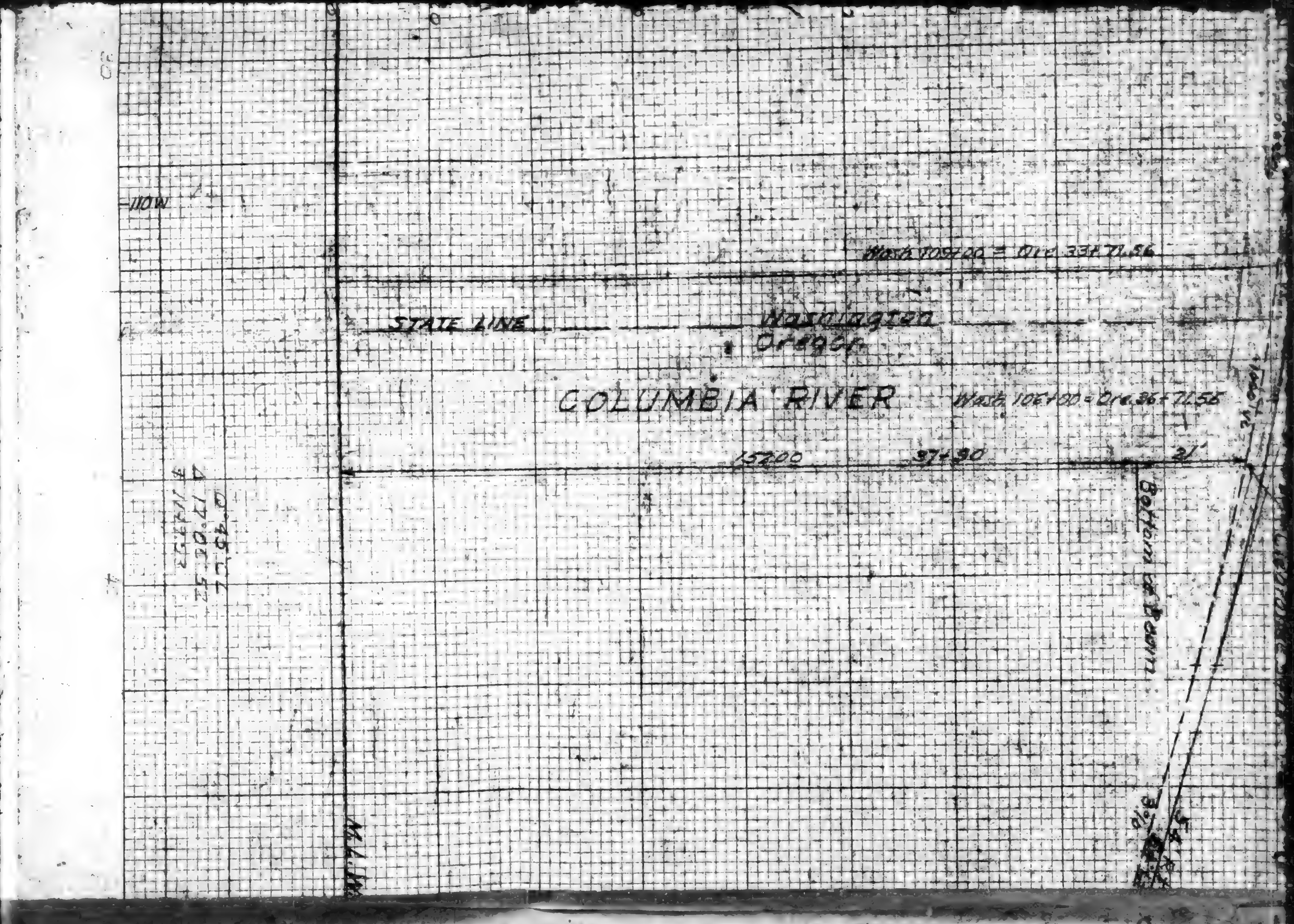
DATE: Feb. 23, 1968 BY: MK

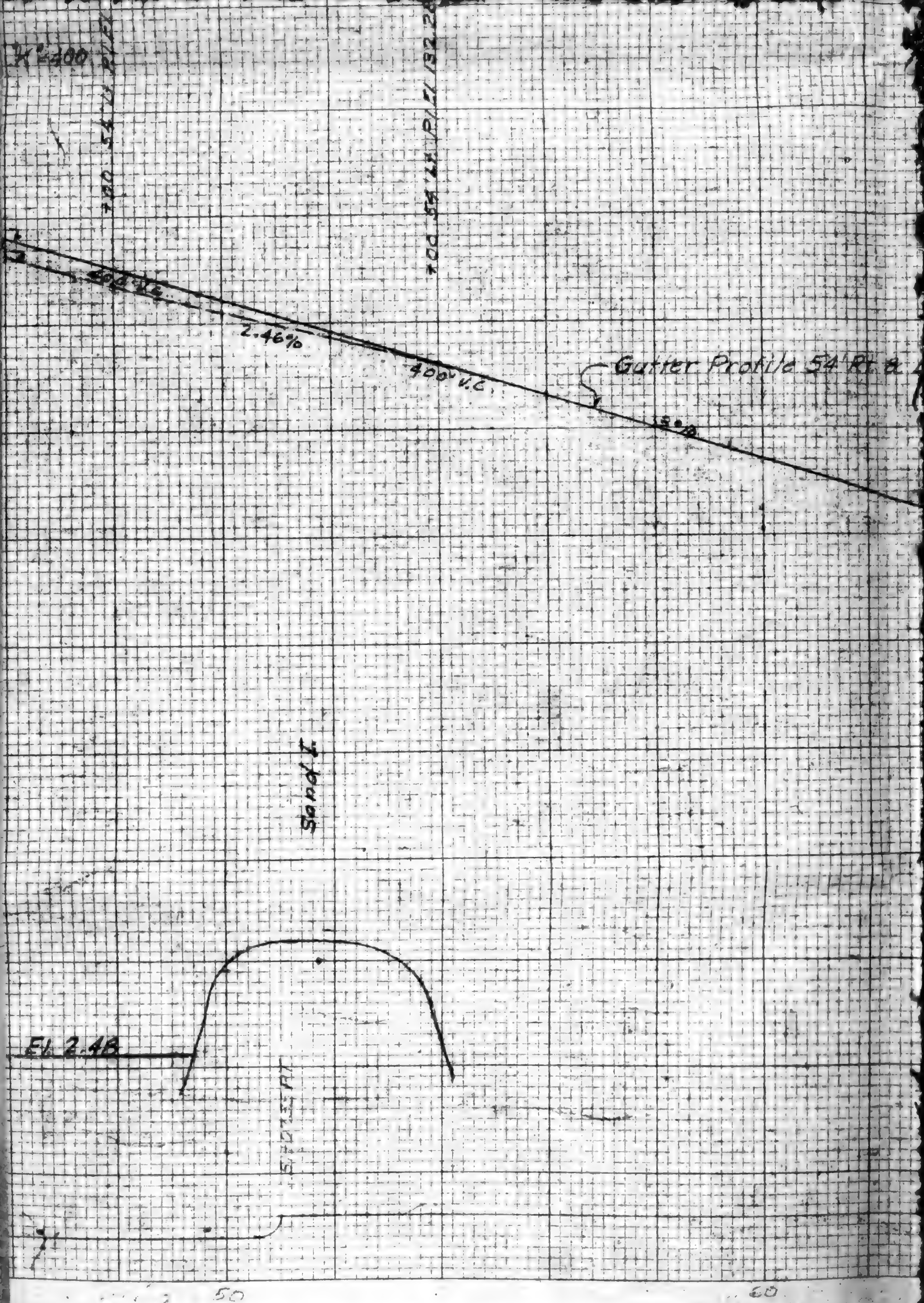
Revised Mar. 27, 1968 from Information on Channel location obtained from the Corps of Engineers.


LEWIS & CLARK HWY. PSH 3
SCALE Vert. 1" = 20'
Horiz. 1" = 200'
DATUM – U.S.C.&G.S. 1947 Adjustment.
ation
rne
145W
140W
135W
130W
0
10

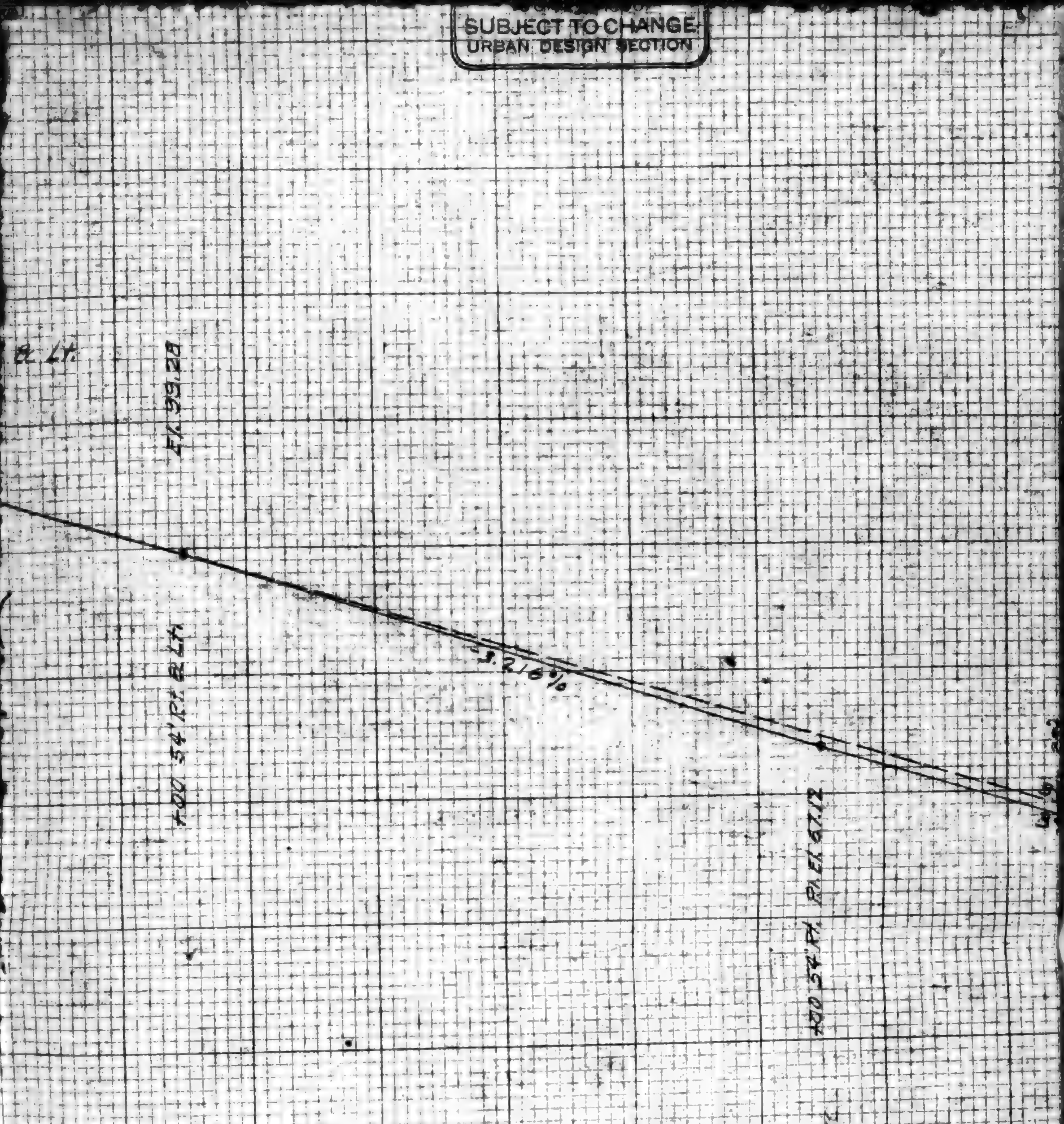

0.75854%
1000'00
Wash 129+50 34 R 13.2
Wash 116+80 Cor 26 R 71.56
160
140
130
120
100
80
60
40
20
0
Evergreen Hwy
S.P.&S. R.R.
123W
120W
113 W
20
30


0.75854%
1000.00
Wash. 129+50 54 Rt. 1217
Wash. 116+00 = Gm. 7647.56
Evergreen Hwy
S.P.&S. R.R.
100
80
60
40
20
0
123 W
120 W
113 W
20

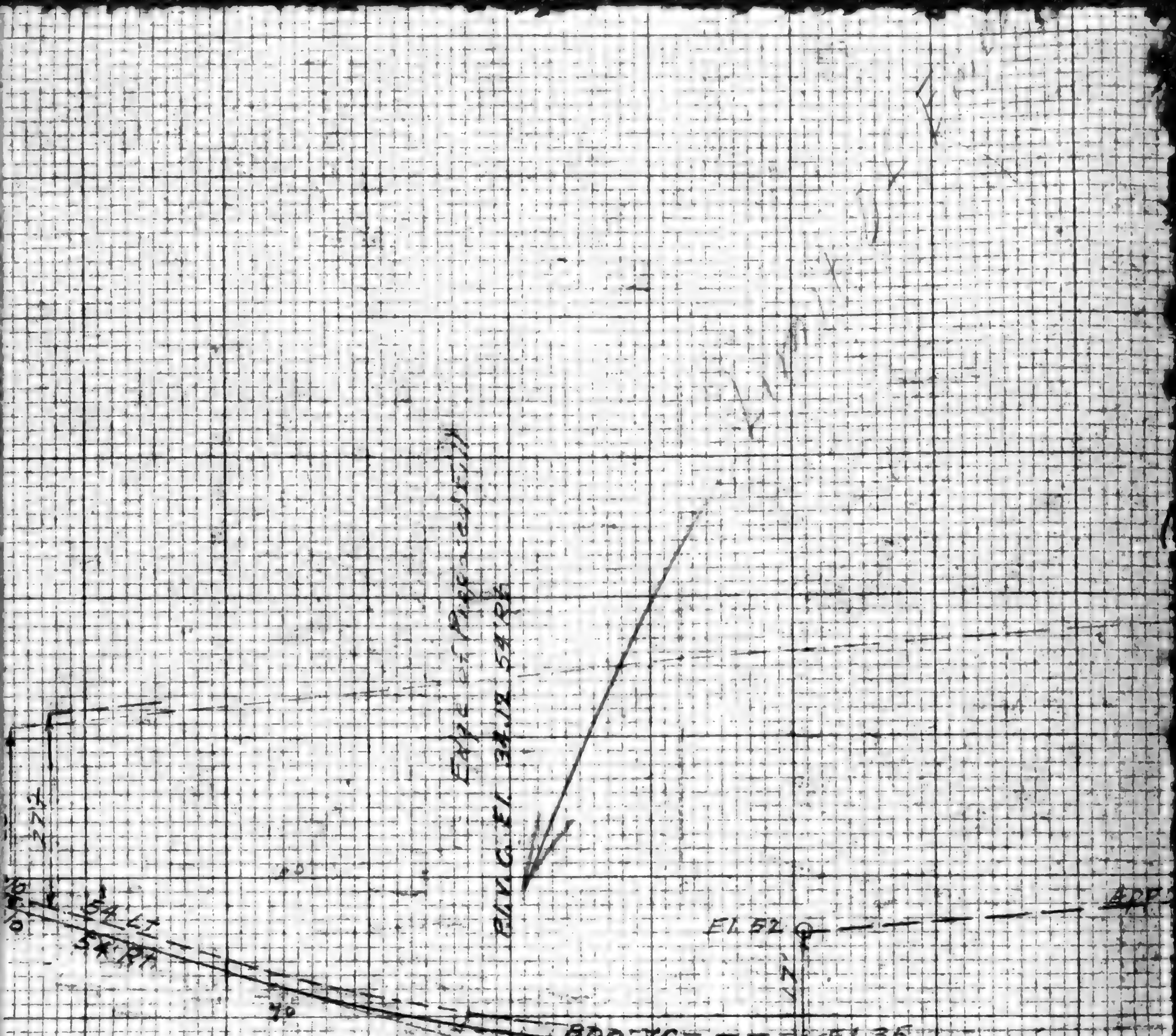

110W
Wash 109+00 = Ore 33+71.56
STATE LINE
Washington
Oregon
COLUMBIA RIVER
Wash. 106+00 = Ore. 36+71.56
15200
37+90
21'
1000' V.C.
Bottom of Beam
3%
54' R
M.L.W.
@ 45 CL
Δ 17°01'52
T N43.53
30
40

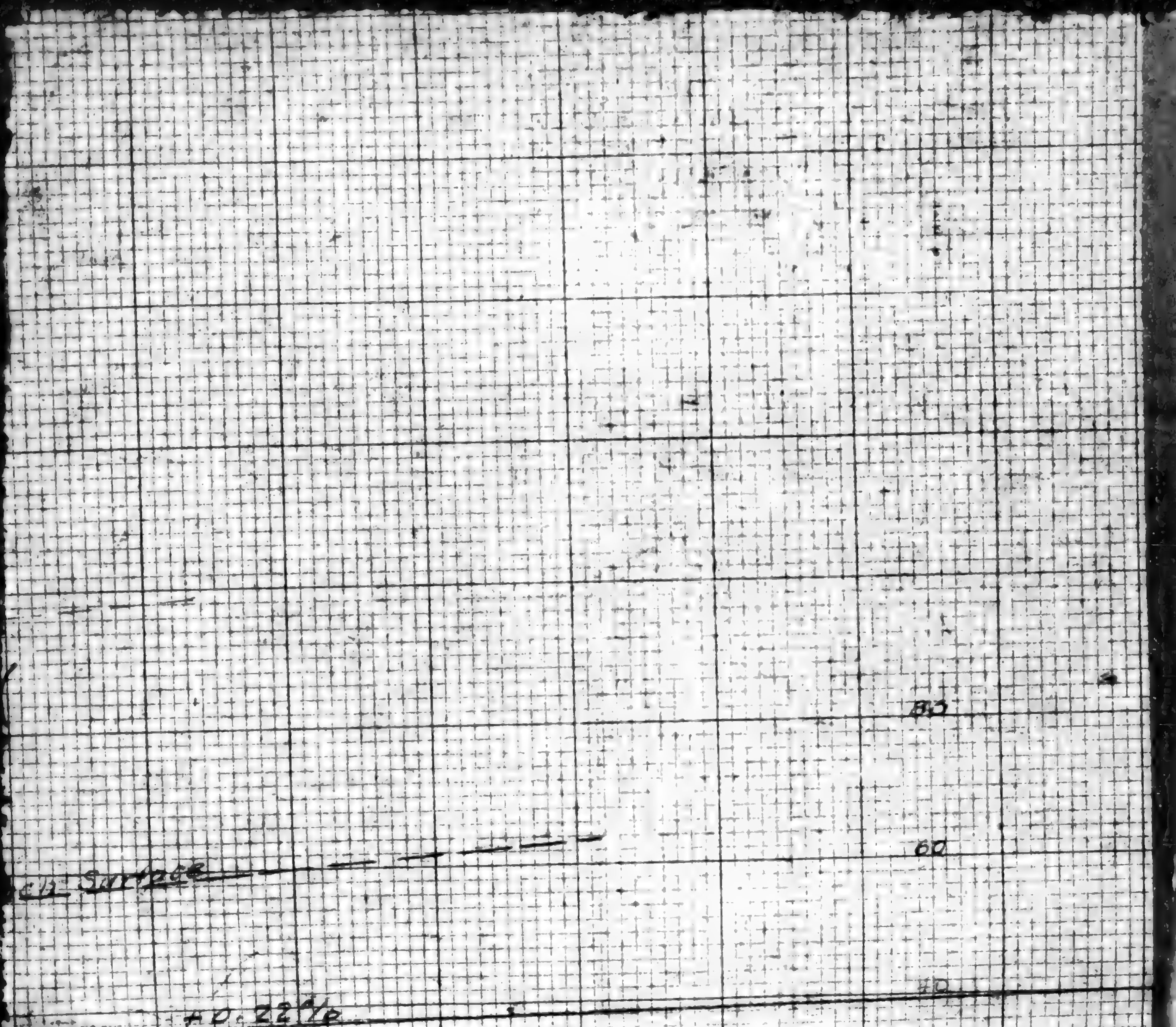

K=400
+30 54' Lt P.I. El
+00 54' Lt. P.I. El 132.2
400' V.C.
2.46%
400' V.C
Gutter Profile 54' Rt. ₵
3.0
Sand I
El. 2.48
50
60

SUBJECT TO CHANGE
URBAN DESIGN SECTION

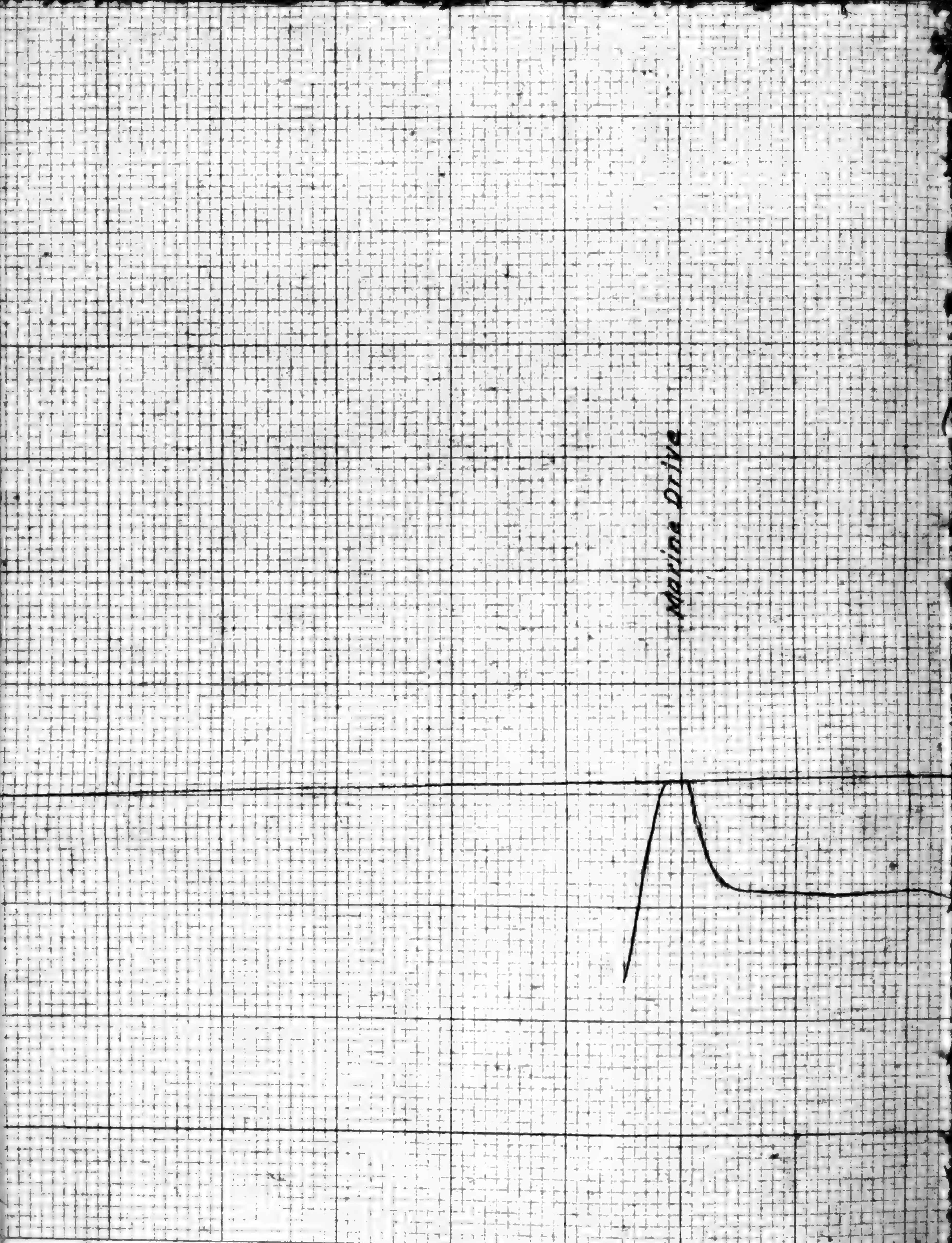


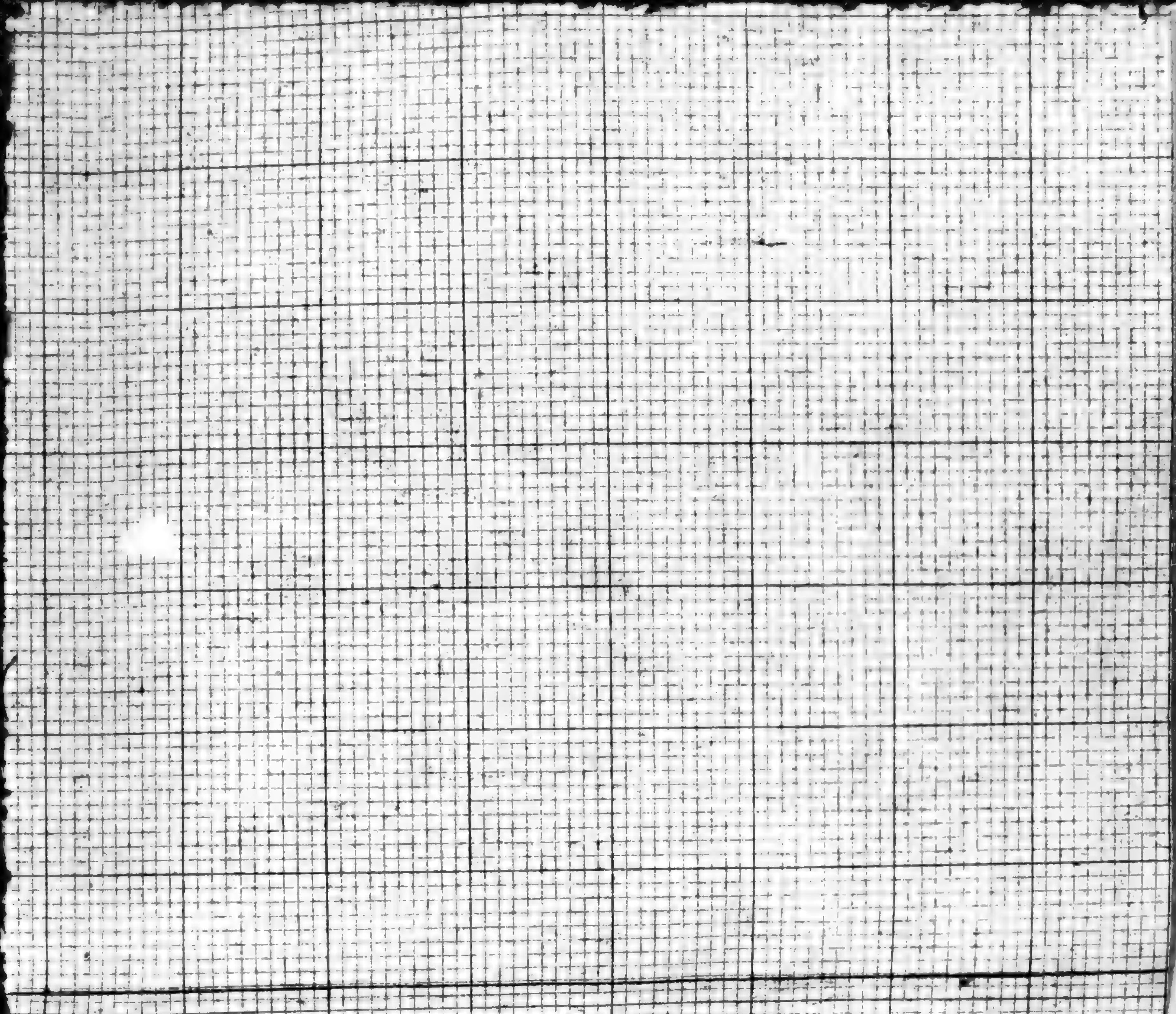
℄ Lt.
El. 99.28
+00 54' Rt. ℄ Lt.
-3.216%
+00 54' Rt. ℄ El. 67.12
65+07.66 P.S.
75+07.66 P.S.
1000 S.P.
3°
4 0.1


EXP. EL. PRE[illegible]
PAV'G. EL. 38.12 54 RT.
37½
54 LT.
54 RT.
70
80 V.C.
EL 52
17'
EL 35
APP
80
90



80
60
40
20
0
Surface
+0.22%
1° C.R.
Δ 46°27'
T. 4251.59
E. 4010.02
100
110.


Marine Drive


134+02.64 P.C.S.
500' Sp
S 2°30'
137+02.64 P.T.
130
140

RECEIVED
JUN 7 - 1968

FORM 2-30 50M 12-63 84676

**FOR FILING**

Const
R/W
EPF

# OREGON STATE HIGHWAY DEPARTMENT

INTER-DEPARTMENT CORRESPONDENCE

Salem, Oregon 97310
June 6, 1968

SUBJECT: I-205 Columbia River Crossing

Col R. King
To: MEMO TO THE FILE

Mr. Heinemann of the Port of Portland called this morning and advised me as follows:

1. Our request for approximately two million yards of dredge material for the section between Marine Drive and the Union Pacific Railroad could easily be handled along with the Port contract for the new airport.

2. The University of Washington had approved their consultants' report on the hydraulic effect of their proposed fill in the Columbia River. He felt that there would be no further work necessary in this regard and that the Corps would now approve their plans.

3. The Corps will probably hold a hearing on their proposal about the middle of July.

4. CRAG has announced that they will hold a hearing on the noise problem about August 1, 1968.

5. The City of Vancouver has employed a Seattle noise consultant (probably Tobin and Associates) to provide a report on the effect of the proposed new airport on the north shore of the Columbia River.

6. He requested that we forward them profiles and typical sections for the portion of our facility between Marine Drive and the south end of the Columbia River Bridge. He would use these in calculating the amount of fill necessary to accommodate our facility.

Memo to the File
Page two
June 6, 1968

7. He requested that we give them a definite answer to their question as to whether or not the State (with Bureau participation) would pay for the necessary fill to support the highway between Marine Drive and the south end of the Columbia River Bridge. I will immediately request an affirmative answer from the Bureau on this matter.

8. He also advised me that they were making minor changes to the channel through Government Island in order to better accommodate the yacht people. These changes would in no way affect our existing proposal.

FB Klaboe
F. B. Klaboe
Assistant State Highway Engineer

FBK:srb

cc: Forrest Cooper
R. L. Porter
Tom Edwards
Ivan Merchant
F. D. Morgan - Note: Immediately provide information requested under number 6 to me for forwarding to the Port.
FBK

8905

RECEIVED
JUN 12 1968

FOR FILING

June 11, 1968

Mr. Hans J. Sperber
Chief, Airports Branch
Federal Aviation Agency
FAA Building, Boeing Field
Seattle, Washington 98108

2330

Dear Mr. Sperber:

Re: Portland International Airport
Columbia River Crossing
Multnomah County

This is in answer to your letter of May 27 regarding the alteration of the Portland International Airport.

The State Highway Department has been working closely with the Port of Portland on the revision of this facility in conjunction with our proposed Interstate 205 route. We have no objections to the proposals.

Very truly yours,

Forrest Cooper
State Highway Engineer

By

F. B. Klaboe
Assistant State Highway Engineer

DNS:jp mc

bc Forrest Cooper
R. L. Porter
Victor D. Wolfe
F. D. Morgan

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
SEATTLE AREA OFFICE
FAA BUILDING, BOEING FIELD
SEATTLE, WASHINGTON 98108

Klaboe

May 27, 1968

IN REPLY REFER TO: SEA-600

.7254

Mr. Forrest Cooper
Oregon State Highway Engineer
Oregon State Highway Building
Salem, Oregon 97310

Dear Mr. Cooper:

Enclosed for your information is a copy of Form FAA 7480-1 with an attached map and a list of airports within 20 miles of the Portland International Airport as submitted by Mr. George D. Hext, Manager of the Aviation Department at the Port of Portland, notifying this agency of the alteration of the Portland International Airport.

We would appreciate any comments you may have concerning this action, however, we are taking the liberty of assuming that you have no objections and no comments regarding this proposal unless we hear from you by June 17, 1968.

Sincerely yours,

for Hans J. Sperber
Chief, Airports Branch
Oregon and Washington

Enclosures

Routing

Morgan
Decker
Bond
Barbee
Walker
Glenn
Swan

Pease
Morelock
Trout
Scott
Wills
[illegible]
Olson

RECEIVED
CONSTRUCTION DIVISION

RECEIVED
MAY 29 1968
OFFICE OF
STATE HIGHWAY ENGINEER

Form Approved: Budget Bureau No. 04-R0094

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

# NOTICE OF LANDING AREA PROPOSAL

☐ ESTABLISHMENT OR ACTIVATION
☒ ALTERATION
☐ DEACTIVATION OR ABANDONMENT
☐ CHANGE OF STATUS

OF

☒ AIRPORT
☐ HELIPORT
☐ SEAPLANE BASE

| | |
|---|---|
| NAME OF PROPONENT, INDIVIDUAL OR ORGANIZATION<br>The Port of Portland | ADDRESS (No., Street, City, State, Zip Code)<br>P.O. Box 3529, 710 S.W. 2nd Avenue, Portland 97208 |

## A. LOCATION OF LANDING AREA

| | | | |
|---|---|---|---|
| 1. NEAREST CITY OR TOWN<br>Portland, Oregon | 2. COUNTY<br>Multnomah | 3. STATE<br>Oregon | 4. DIST. & DRCT TO NEAREST CITY OR TOWN FROM LANDING AREA.<br>MILES:<br>DIRECTION: North |
| 5. NAME OF LANDING AREA<br>Portland International Airport | 6. LATITUDE<br>45° 35' 21"N | 7. LONGITUDE<br>122° 35' 33"W | 8. ELEVATION<br>25' USC&GS |

## B. PURPOSE (List, below, localities to be served if new facilities, if change in status or alteration, briefly describe change & purpose).

TYPE USE
☒ PUBLIC
☐ PRIVATE
☐ PERSONAL

Expansion of airport by increasing distance between parallel primary runways and realignment of runways.

CONSTRUCTION DATES
TO BEGIN / BEGAN: 1/1/69
EST. COMPLETION: 1/1/73

## C. OTHER LANDING AREAS

| C. OTHER LANDING AREAS | DRCT. FROM "A" ABOVE | DIST. (Miles) |
|---|---|---|
| SEE ATTACHED LIST | | |

## D. LANDING AREA DATA

| | | EXISTING (If any) | | | PROPOSED | | |
|---|---|---|---|---|---|---|---|
| 1. AIRPORT OR SEAPLANE BASE | BEARING OF RUNWAY(S) OR SEALANE(S) | S | 61 | E | S | 68-30 | E |
| | LENGTH OF RUNWAY(S) OR SEALANE(S) | 8,000<br>8,800 | | | 12,000<br>10,000 | | |
| | WIDTH OF RUNWAY(S) OR SEALANE(S) | 200<br>150 | | | 150<br>150 | | |
| | PRIMARY LANDING DIRECTION | E/SE<br>W/NW | | | E/SE<br>W/NW | | |
| | TYPE OF RUNWAY SURFACE | Asphalt | | | Asphalt | | |
| 2. HELIPORT | DIMENSIONS OF LANDING AND TAKEOFF AREA | | | | | | |
| | DIMENSIONS OF TOUCHDOWN AREA | | | | | | |
| | INGRESS / EGRESS DIRECTION | | | | | | |
| | TYPE OF SURFACE (Turf, rooftop, etc.) | | | | | | |
| 3. ALL | DESCRIPTION OF LIGHTING (If any)<br>Full Cat. II Proposed | | | | DIRECTION OF PREVAILING WIND<br>See Wind Rose | | |

## E. OBSTRUCTIONS

| TYPE | HEIGHT ABOVE LANDING AREA | DRCT. FROM "A" ABOVE | DIST. (Miles) |
|---|---|---|---|
| KGW Radio Tower | 600' | W/NW | 3.4 |

## F. OPERATIONAL DATA

| | | PRESENT (If est. indicate by letter "E") | ANTICIPATED 5 YRS. HENCE |
|---|---|---|---|
| 1. EST. OR ACTUAL NO. BASED ACFT. | | | |
| AIRPORTS | MULTIENGINE | 40 | 100 |
| | SINGLE-ENGINE | 80 | 150 |
| HELIPORTS | UNDER 3500 LBS. MGW | | |
| | OVER 3500 LBS. MGW | | |
| 2. AVERAGE NO. MONTHLY LANDINGS | | | |
| AIR CARRIER | | 6,406 | 10,000 |
| GENERAL AVIATION | | 3,770 | 7,500 |
| OTHER (Military, glider, etc.) Jan. 1968 | | 1,515 | 1,500 |

3. ARE IFR OPERATIONS ANTICIPATED
☐ NO ☒ YES WITHIN ________ YEARS

## G. NOISE CONSIDERATIONS

| IDENTIFICATION | DRCT. FROM "A" ABOVE | DIST. (Miles) |
|---|---|---|
| SEE BOLT, BERANEK & NEWMAN REPORT | | |

## H. APPLICATION FOR AIRPORT LICENSING

☐ HAS BEEN MADE
☐ WILL BE MADE
☐ NOT REQUIRED
☐ STATE
☐ COUNTY
☐ MUNICIPAL AUTHORITY

## I. CERTIFICATION:

I hereby certify that all of the above statements made by me are true and complete to the best of my knowledge.

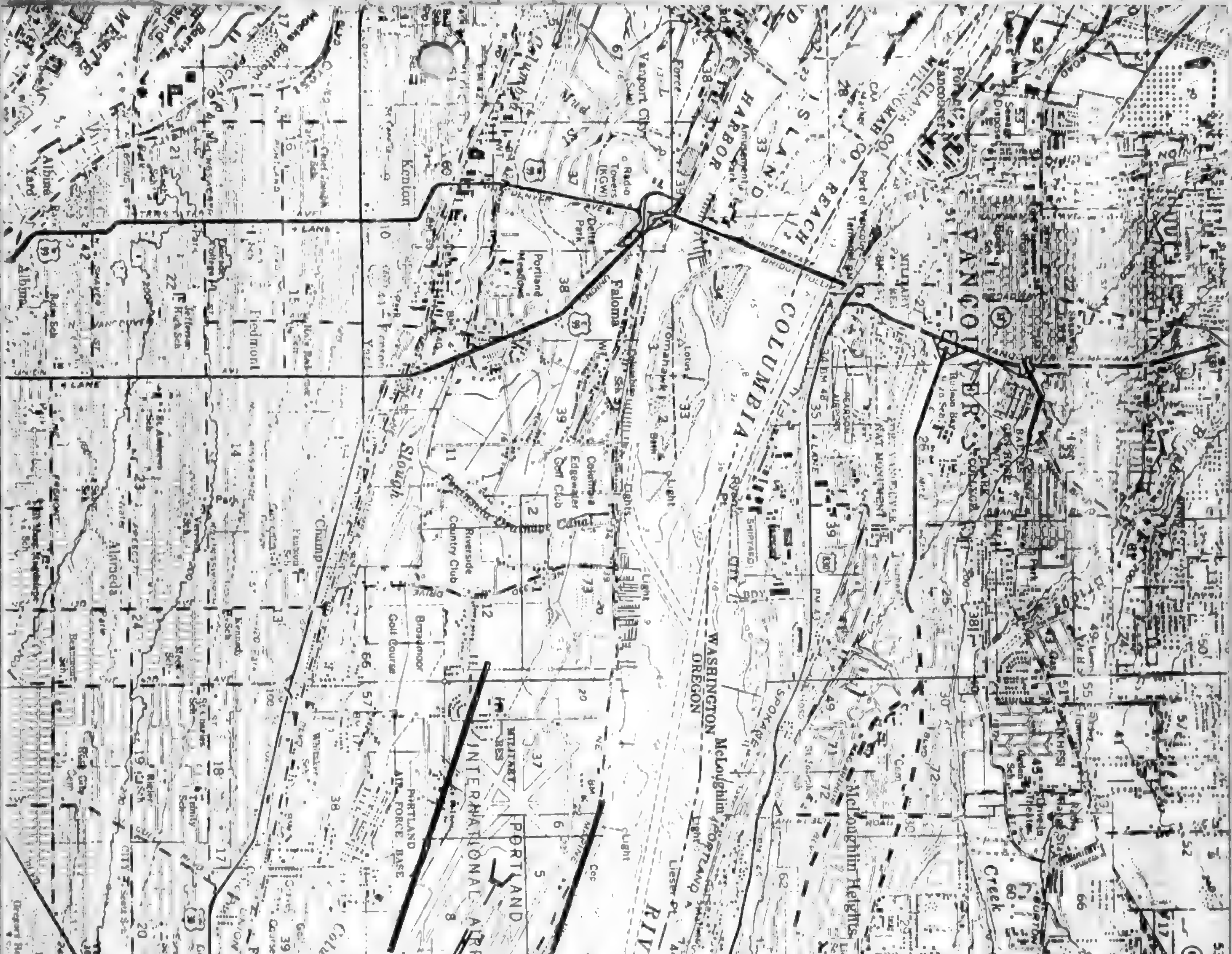
| | | | |
|---|---|---|---|
| SIGNATURE | TITLE<br>Manager, Aviation Dept. | TELEPHONE NO.<br>224-4260 | DATE<br>5/15/68 |

FAA FORM 7480-1 (5-67) SUPERSEDES FAA FORM 2681

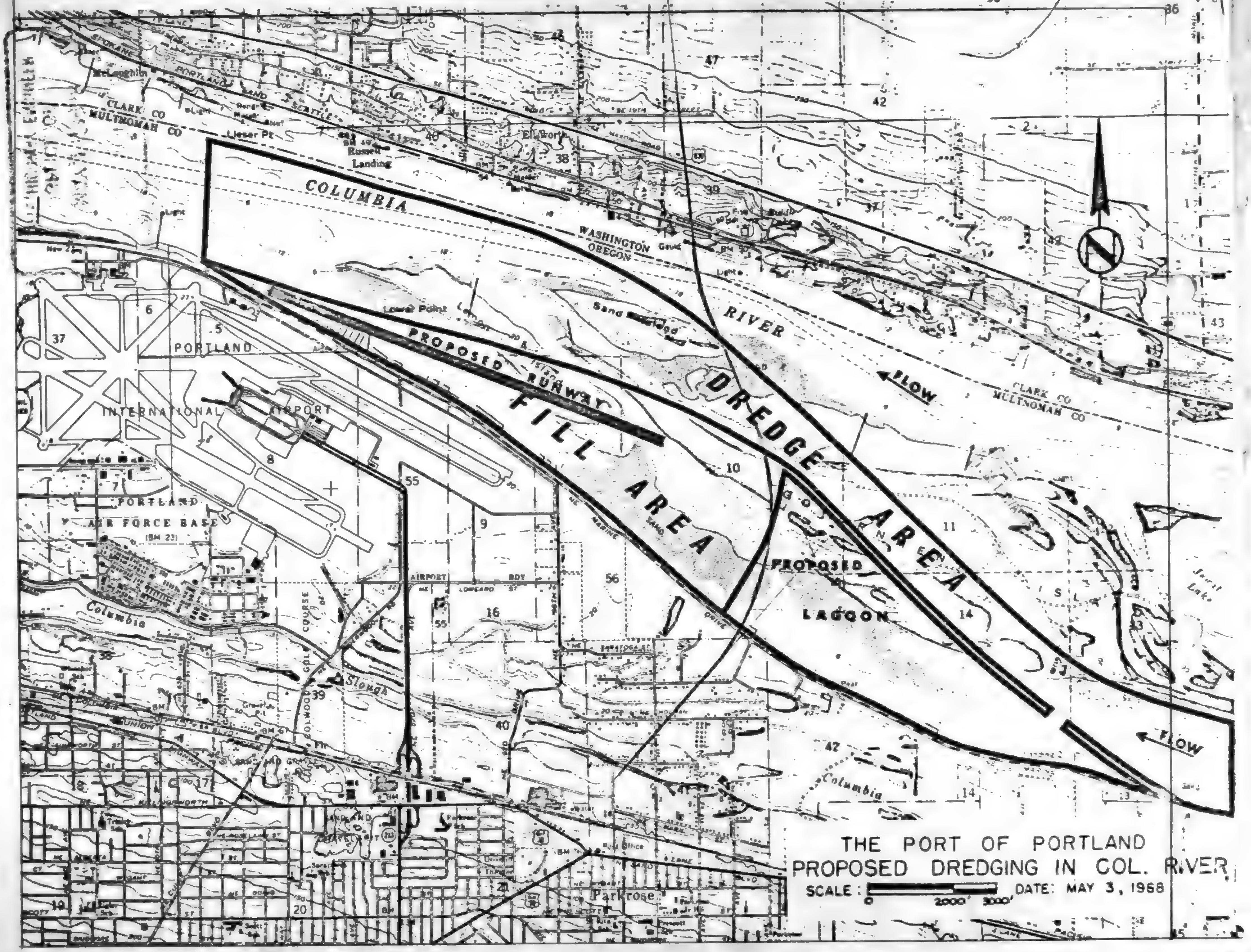
## C. OTHER LANDING AREAS WITHIN 20 MILES

| 1. Name | 2. Miles to | 3. Direction to |
|---|---|---|
| Withycombe AAF/ARNG | 16 | Southeast |
| Trohs | 12 | East-Southeast |
| Portland-Troutdale | 10 | East |
| Pearson | 3 | North-Northwest |
| Evergreen | 6 | North |
| Meyer | 19 | South-Southwest |
| Starks | 15 | South-Southwest |
| Portland-Hillsboro | 17 | Southwest |
| Bernard | 11 | South-Southwest |
| Hillsboro Poehler | 11 | Southwest |
| Columbia Co. (Scappoose) | 18 | West |
| Scholl | 10 | North |
| Groves | 10 | East-Northeast |

Accompanyment to Form FAA-2681 dated March 4, 1968


COLUMBIA RIVER
PORTLAND INTERNATIONAL AIRPORT
PORTLAND AIR FORCE BASE
VANCOUVER
WASHINGTON
OREGON
HAYDEN ISLAND
McLoughlin Heights
MILL PLAIN
Government Island
Columbia Slough
Columbia Edgewater Golf Club
Riverside Country Club
Broadmoor Golf Course
Portland Meadows
Faloma
Kenton
Alameda
Parkrose
Vancouver Lake
Burnt Bridge Creek
Royal Oaks Country Club
Ellsworth
Russell Landing
Lower Point
Sand Island
CLARK CO
MULTNOMAH CO

8905


COLUMBIA
RIVER
DREDGE AREA
FILL AREA
PROPOSED RUNWAY
PROPOSED
LAGOON
FLOW
FLOW
WASHINGTON
OREGON
CLARK CO
MULTNOMAH CO
PORTLAND
INTERNATIONAL AIRPORT
PORTLAND
AIR FORCE BASE
Columbia
Slough
Russell Landing
Lower Point
Parkrose
Columbia
Sand Island

THE PORT OF PORTLAND
PROPOSED DREDGING IN COL. RIVER
SCALE: 0 2000' 3000' DATE: MAY 3, 1968

NOTED
TOM EDWARDS

8

1979 Columbia R. Br. (N. Channel 8905
Superstruc.) Sec. of E. Ptld. Fwy.
(Structure) #4

7105

4

RECEIVED
JUN 6 - 1968
FOR FILING

COMMISSION
DENNIS [illegible]
President
LEE E. CALDWELL
Vice President
ERLING E. JACOBSEN
Secretary
ROBERT B. WILSON
Treasurer
LEW S. RUSSELL
HOWARD B. SOMERS
DONALD G. DRAKE
HAROLD S. HIRSCH
JOHN S. BRANDIS

GEORGE M. BALDWIN
General Manager

THE PORT OF PORTLAND

BOX 3529 PORTLAND, OREGON 97208 Telephone (503) 224-4260
Lindsay Building 710 S.W. 2nd Avenue

May 17, 1968

Mr. F. B. Klaboe
Assistant State Highway Engineer
Oregon State Highway Department
Salem, Oregon 97310

Dear Fred:

Attached for your file is a copy of the hydraulic study carried out by Bauer Engineering, Inc., in connection with our airport development program. Dr. Bauer used a computer program in determining the flow conditions in this reach of the river.

If there are any questions regarding this data, it is suggested that you contact Mr. Ogden Beeman of this office.

NOTED
R. L. PORTER

NOTED
F. B. KLABOE

Sincerely,

THE PORT OF PORTLAND

Adam

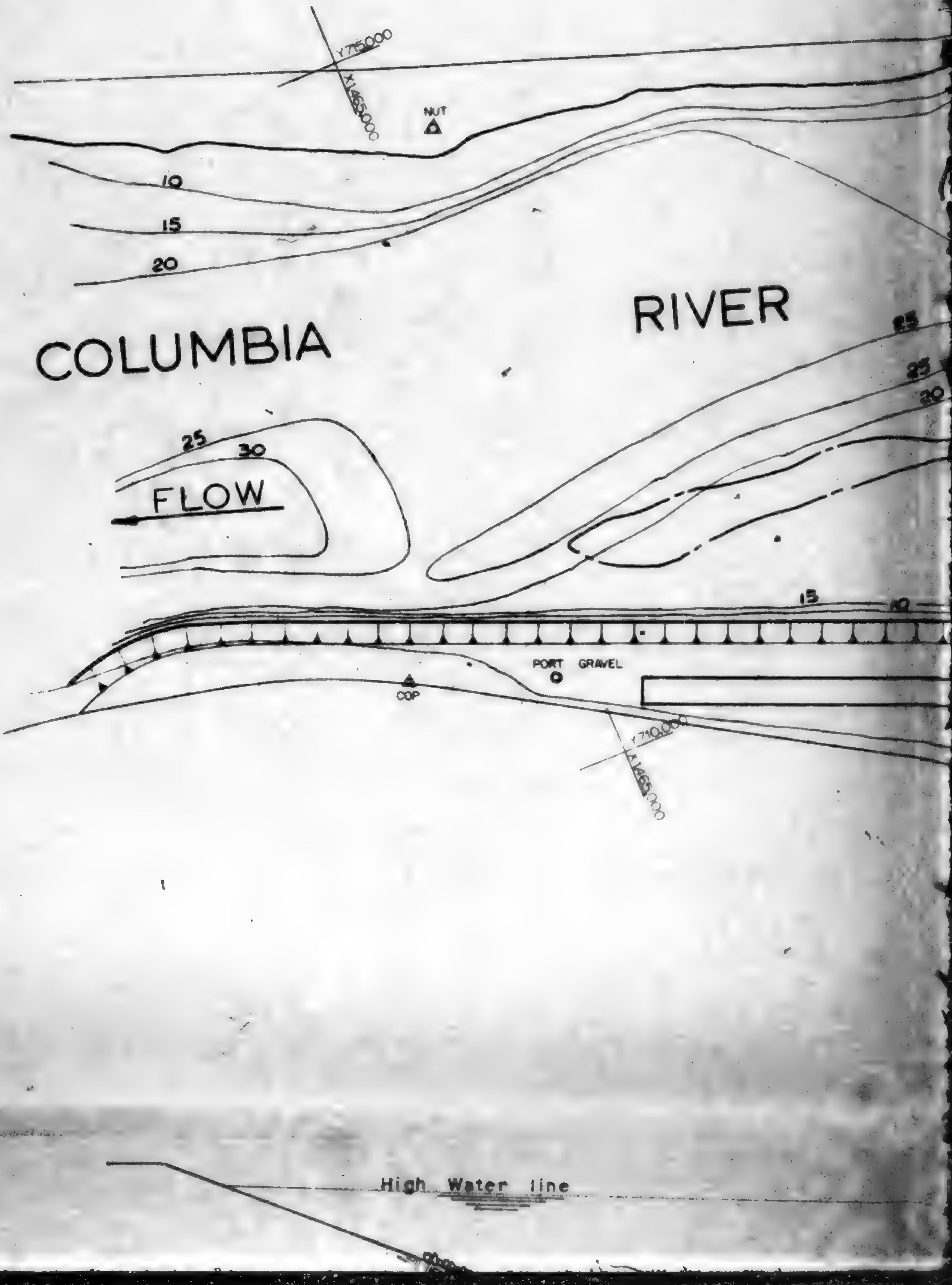
A. J. HEINEMAN
Assistant General Manager

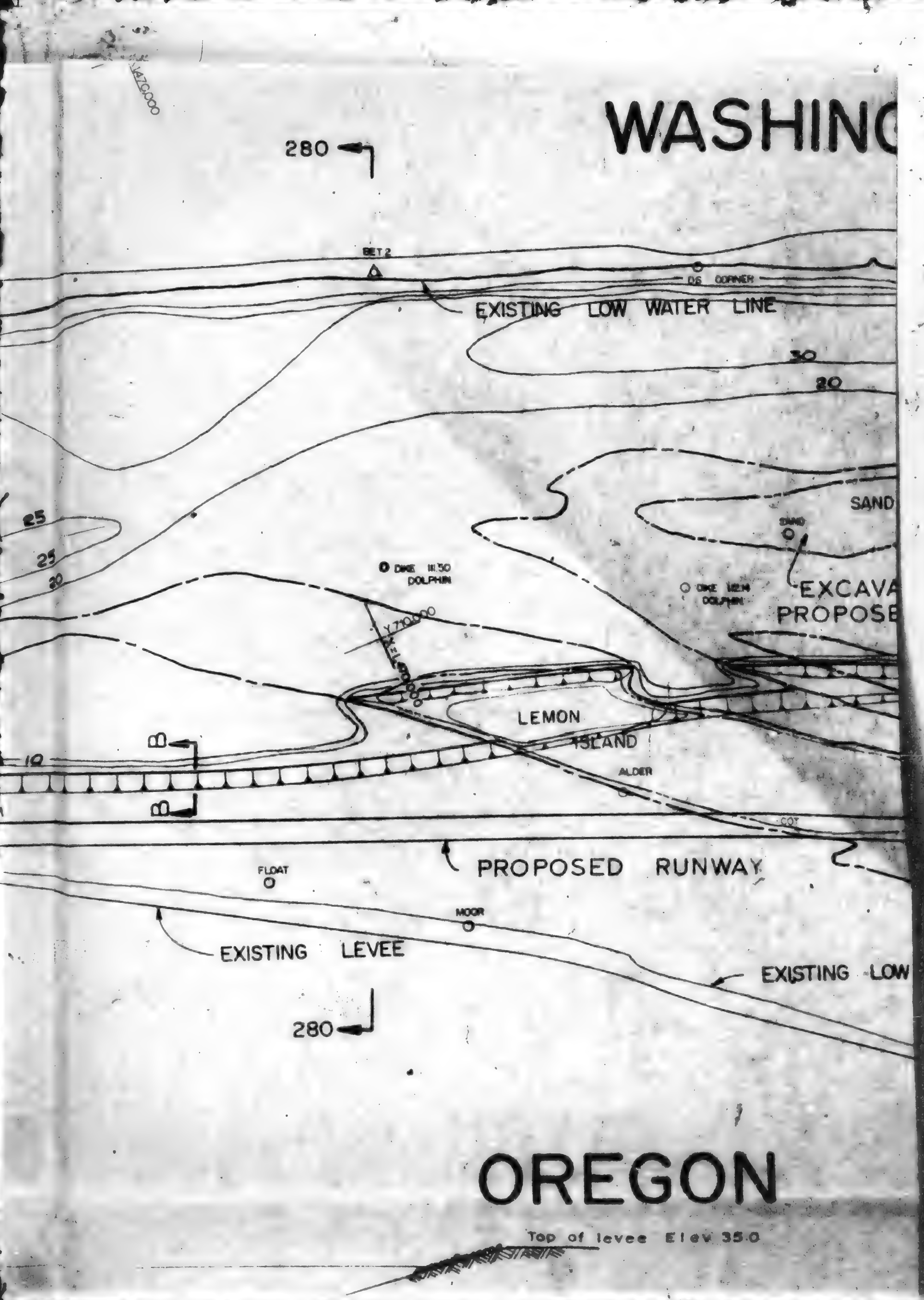
NOTED
TOM EDWARDS

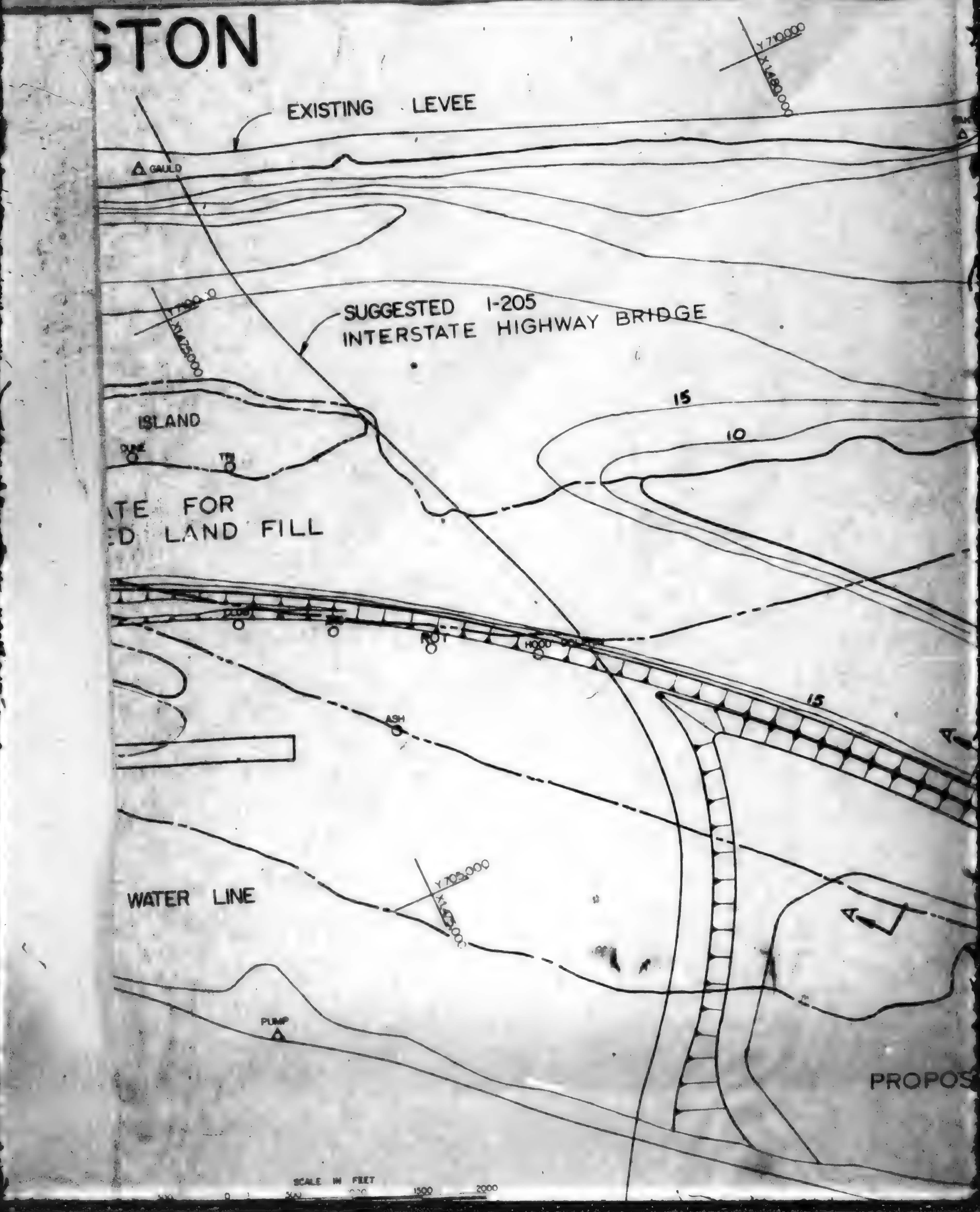
AJH:mh
Attachment

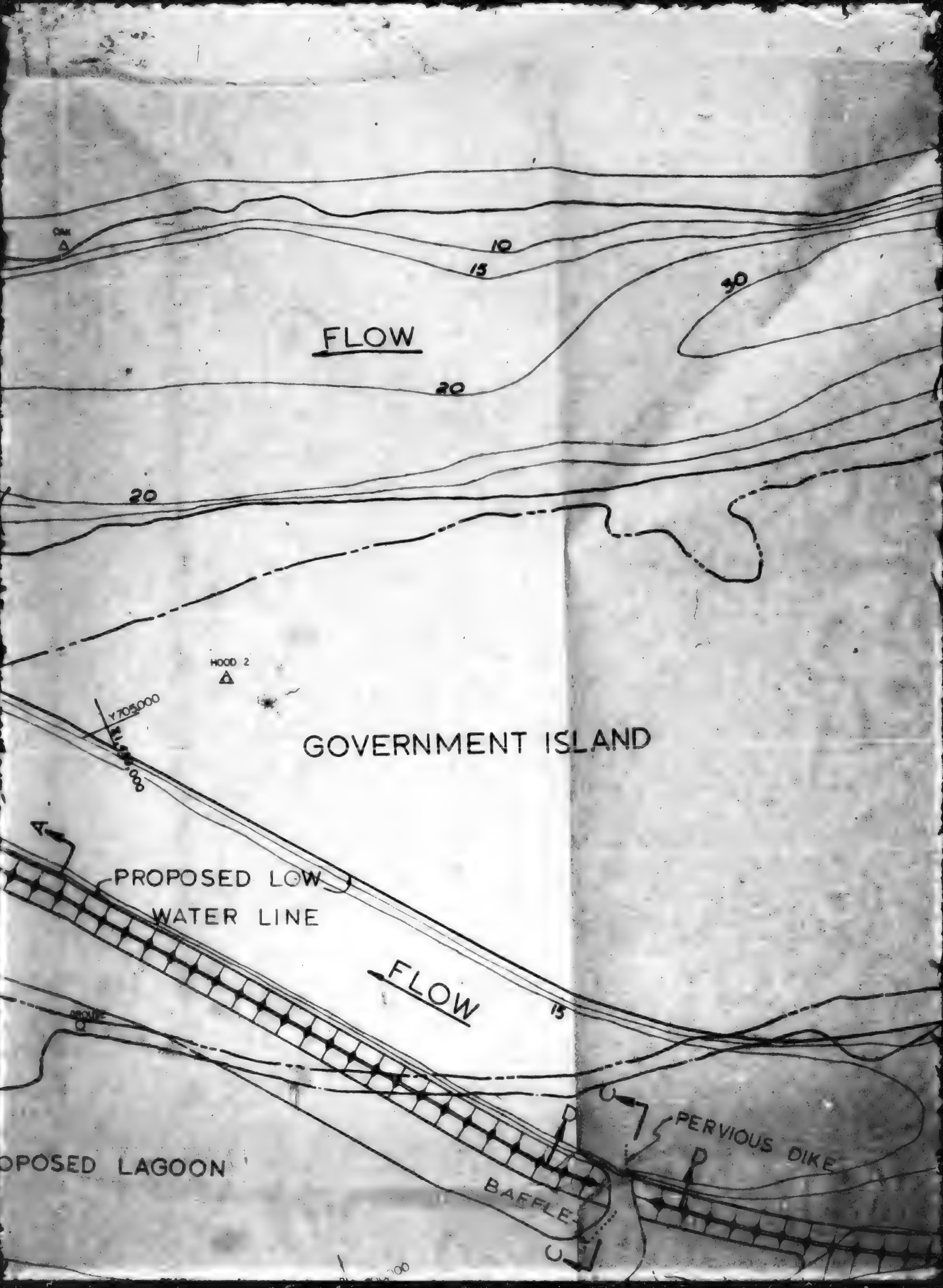
cc: Ogden Beeman

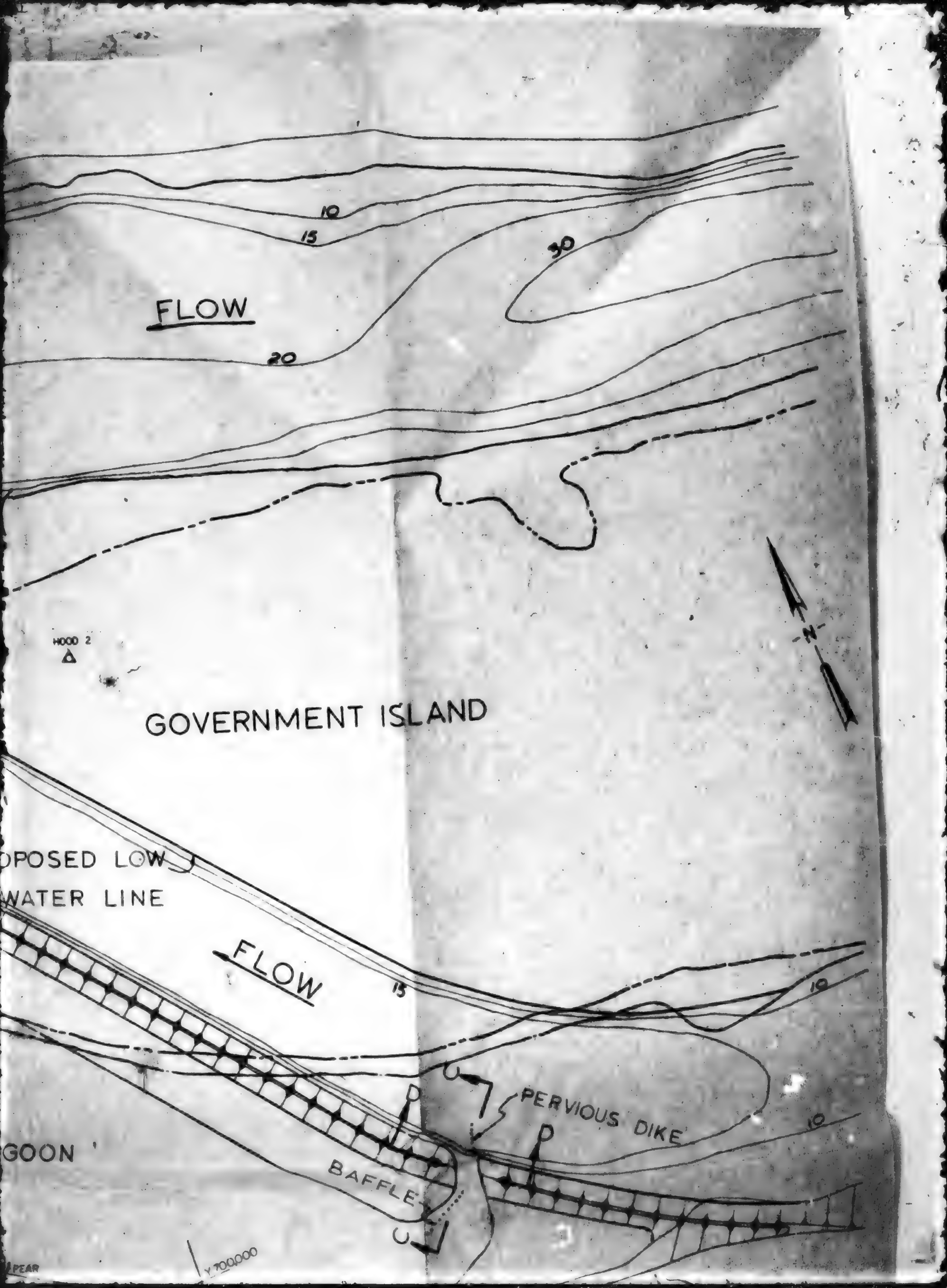
RECEIVED
MAY 20 1968
OFFICE OF
STATE HIGHWAY ENGINEER

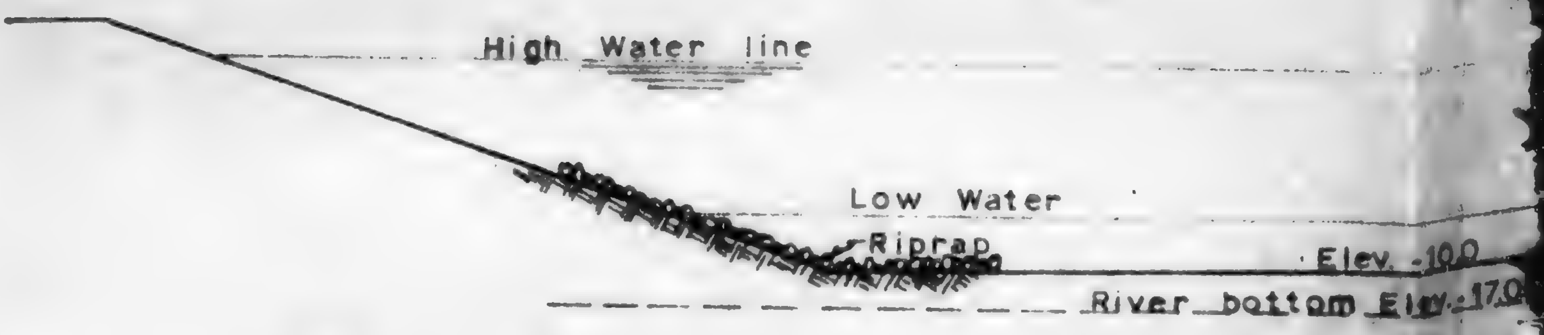

Y715,000
X1,465,000
NUT
10
15
20
COLUMBIA
RIVER
25
25
20
25
30
FLOW
15
10
PORT GRAVEL
COP
Y710,000
X1,465,000
High Water line


1426000
WASHING
280
BET 2
DS CORNER
EXISTING LOW WATER LINE
30
20
25
25
20
SAND
SAND
DIKE 111.50 DOLPHIN
DIKE 112.14 DOLPHIN
EXCAVA
PROPOSE
Y 710,000
LEMON
ISLAND
B
10
B
ALDER
COT
PROPOSED RUNWAY
FLOAT
MOOR
EXISTING LEVEE
EXISTING LOW
280
OREGON
Top of levee Elev 35.0


GTON
Y 710,000
X 1,480,000
EXISTING LEVEE
GAULD
SUGGESTED I-205
INTERSTATE HIGHWAY BRIDGE
15
10
ISLAND
DUNE
TRI
ATE FOR
ED LAND FILL
ROT
ASH
15
WATER LINE
Y 705,000
PUMP
PROPOS
SCALE IN FEET
500 0 500 1000 1500 2000

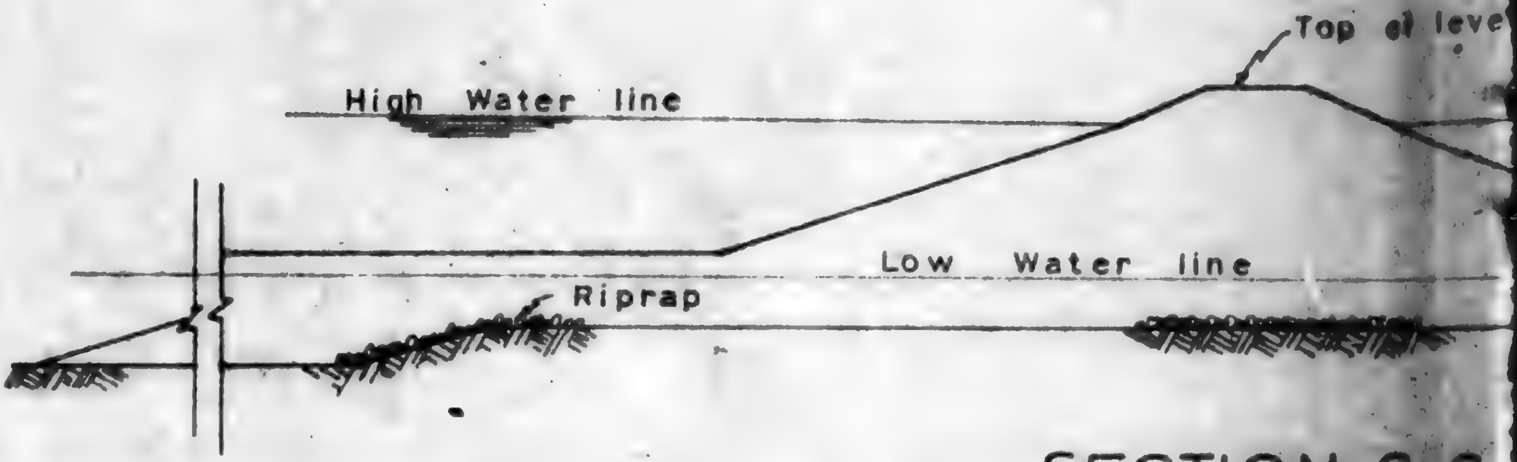

OAK
10
15
30
FLOW
20
20
HOOD 2
Y705,000
000
GOVERNMENT ISLAND
A
PROPOSED LOW
WATER LINE
FLOW
15
OPOSED LAGOON
PERVIOUS DIKE
BAFFLE
D
C


10
15
30
FLOW
20
HOOD 2
N
GOVERNMENT ISLAND
OPOSED LOW
WATER LINE
FLOW
15
10
PERVIOUS DIKE
10
GOON
BAFFLE
Y 700,000
PEAR


High Water line
Low Water
Riprap
Elev. -10.0
River bottom Elev.-17.0

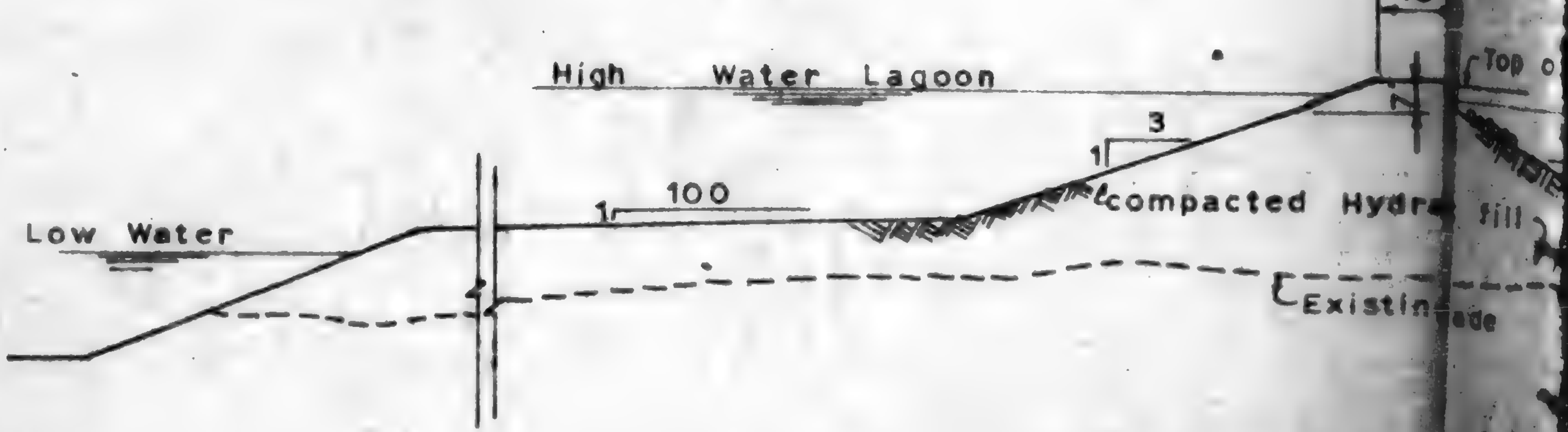
## SECTION D-D

1" = 40'
40 0 40
scale


Top of leve
High Water line
Low Water line
Riprap

## SECTION C-C

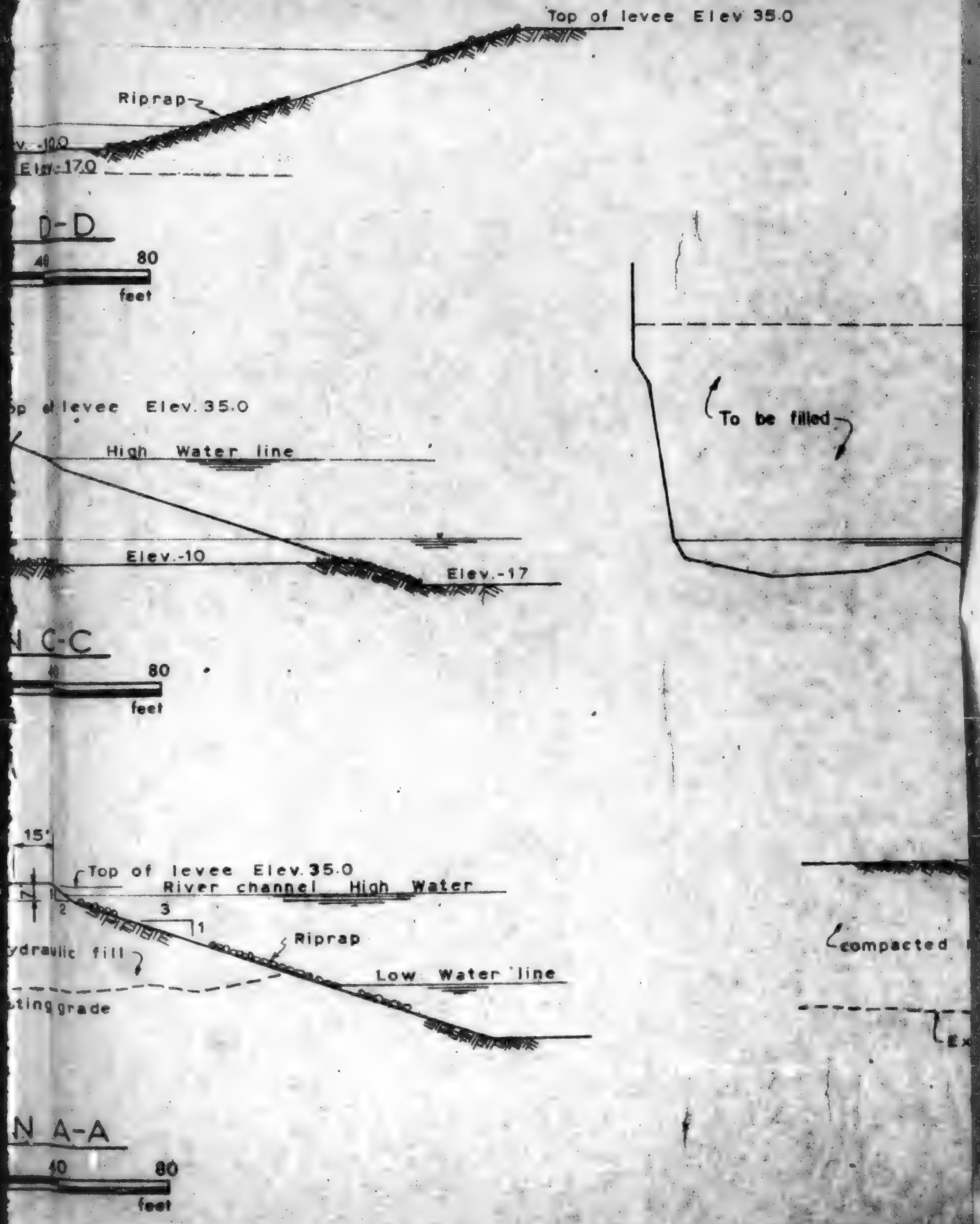
40 0 40
scale


15'
Top o
High Water Lagoon
3
1
1
100
compacted Hydra fill
Low Water
Existin ade

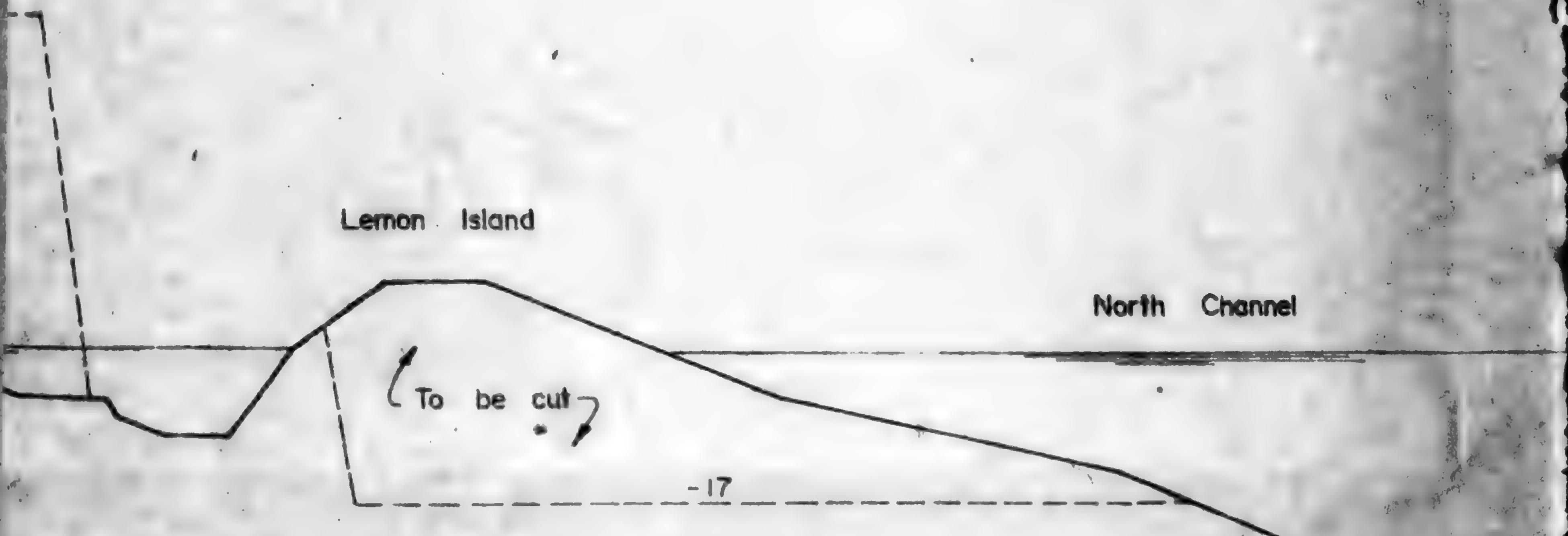
## SECTION

40 0
scale

# OREGON

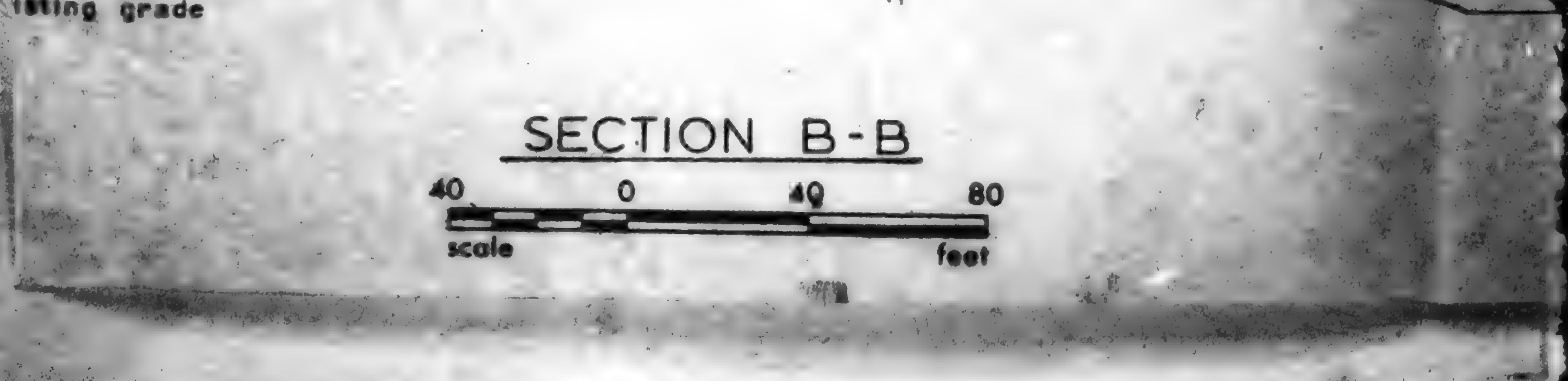

Top of levee Elev 35.0
Riprap
ev. -10.0
Elev -17.0
D-D
40
80
feet
op of levee Elev. 35.0
High Water line
Elev. -10
Elev. -17
N C-C
40
80
feet
To be filled
15'
Top of levee Elev. 35.0
River channel High Water
7
1
2
3
1
Riprap
ydraulic fill
Low Water line
sting grade
compacted
Ex
N A-A
40
80
feet

PROPOSED
SCALE IN FEET
500
0
500
1000
1500
2000


Lemon Island
North Channel
To be cut
-17

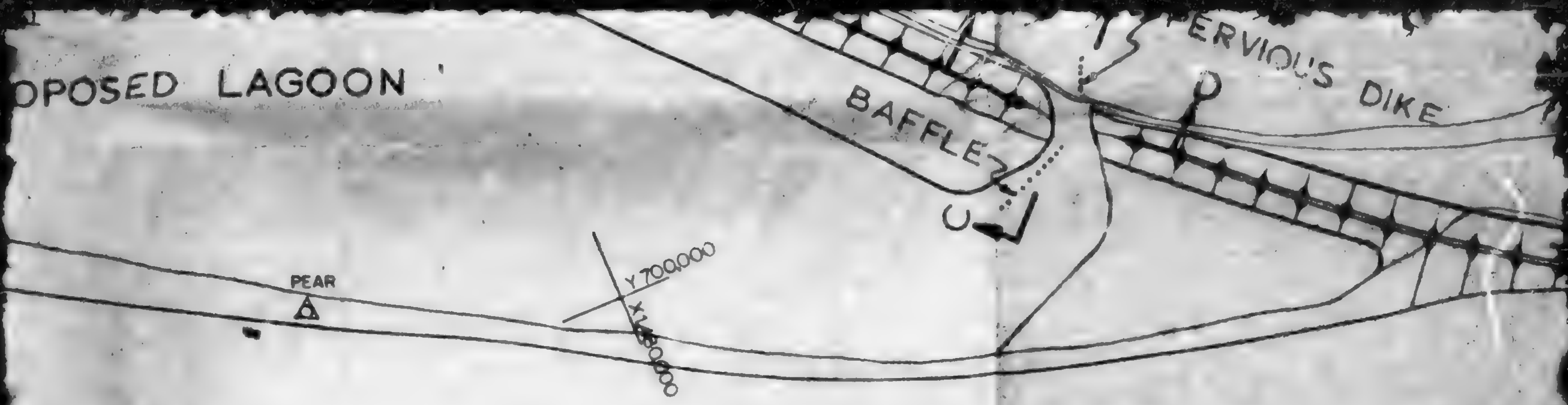
## STATION 280

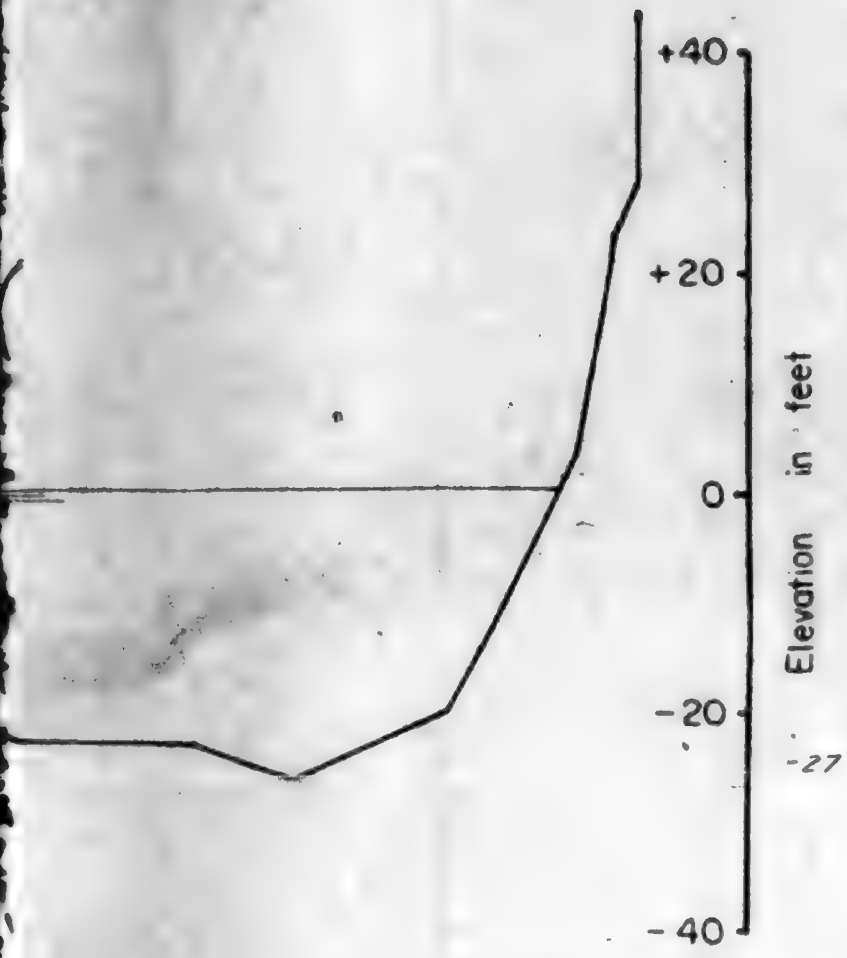
500
0
500
1000
Horizontal scale in feet


Top of levee Elev. 40.0
High Water line
3
1
Riprap
Hydraulic fill
Low Water line
3
1
Existing grade

## SECTION B-B

40
0
40
80
scale
feet


OPOSED LAGOON
BAFFLE
ERVIOUS DIKE
PEAR
Y700,000


+40
+20
0
-20
-27
-40
Elevation in feet

## NOTES:

1. SHORE PROTECTION TO BE D
AS NEEDED AFTER SELECTION O
PLAN.

2. EXACT DELINEATION OF BOU
OF LAGOON TO BE DETERMINED
LAND USE PLANNING COMMISSIO

Water line
3
1

PORT OF PORTLAN
PORTLAND, OREGON

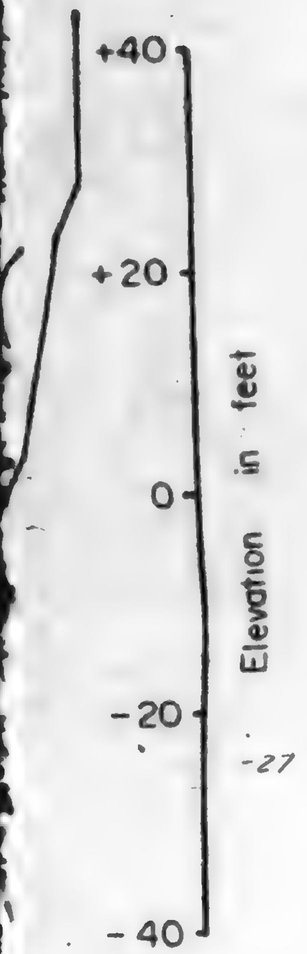
AIRPORT EXPANSION | HYDRAULIC

PLAN AND SECTIONS
ALTERNATIVE 2

BY BAUER ENGINEERING

CHICAGO, ILLINOIS | APRIL 1968 | SHEET

PERVIOUS DIKE
D
10
BAFFLE
C
Y 700,000
X 1,480,000


+40
+20
0
-20
-27
-40
Elevation in feet

## NOTES:

1. SHORE PROTECTION TO BE DESIGNED AS NEEDED AFTER SELECTION OF FINAL PLAN.

2. EXACT DELINEATION OF BOUNDARIES OF LAGOON TO BE DETERMINED BY LAND USE PLANNING COMMISSION.

| | |
|---|---|
| PORT OF PORTLAND<br>PORTLAND, OREGON | |
| AIRPORT EXPANSION | HYDRAULIC ANALYSES |
| PLAN AND SECTIONS<br>ALTERNATIVE 2 | |
| BY BAUER ENGINEERING INC. | |

| | | |
|---|---|---|
| CHICAGO, ILLINOIS | APRIL 1968 | SHEET 1 OF 1 |

THE PORT OF PORTLAND
PORTLAND, OREGON

# PRELIMINARY REPORT OF HYDRAULIC ANALYSES

# RELATED TO THE PROPOSED AIRPORT EXPANSION

APRIL, 1968

BAUER ENGINEERING, INC.
20 North Wacker Drive
Chicago, Illinois 60606

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- Spiral Flow at the Bend .............. 5

CHANNEL CHARACTERISTICS ...................... 7

- Design Flood ........................... 7
- Stage-Discharge Relationship .......... 7
- Stream Bed Materials .................. 8
- Coefficient of Roughness ............. 8
- Losses through the Pervious Dike ...... 9
- Configuration of the Proposed Channel... 10
- Effects of the Cross Current Between the North and South Channels........... 10

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- Effects on North (Washington) Shore .... 12
- The Effects of the Overdredging in the Main Channel ...................... 15
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BAUER ENGINEERING, INC.
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CABLE ADDRESS
"BAUERENG CHICAGO"

April 19, 1968

SUMMARY LETTER

Mr. George M. Baldwin
General Manager
The Port of Portland
P. O. Box 3529
Portland, Oregon 97208

Subject: Airport expansion;
hydraulic aspects

Dear Mr. Baldwin:

This letter is a summary of our studies made for the Port of Portland regarding the hydraulic aspects of the proposed expansion of the airport. We have concluded that the proposed relocation of a portion of the Columbia River south of Government Island is a feasible and sound way of achieving the additional space required.

## The Present Channels

The present channels in the reach of the river involved in this study are shown in Exhibit 1. The main or north channel lies between Government Island and the Washington shore; the south or minor channel lies between Government Island and the Oregon shore. Exhibit 1 also shows the locations of the cross sections for which bottom soundings were available.

The hydraulic aspects of this reach were studied with the aid of the following information:

1. Scale maps showing channel configurations, shore topography and bottom soundings for each of several years covering the period 1917 to 1967.

2. Aerial photographs showing present channel configurations and shoreline development.

3. Flow measurements made with current meter by the Batelle Memorial Institute for the purpose of determining the division of flow between the north and south channels under low-flow conditions.

4. Flow profiles for major historical floods during the period 1876 to 1965.

5. Records of past historical flood peak flows and forecasts of future peak flood flows after Canadian storage comes into operation.

6. Field inspection of conditions and materials comprising the Washington, the Oregon, and various island shore lines.

7. Envelopes of historical maximum and minimum flows by time of year.

8. Reports on subsurface borings made to explore types and depths of materials to be excavated.

The friction coefficients for the main channel and for the overbank flow at higher stages were determined from the knowledge of historical discharges and stages .

Using the standard step method and the Meyer-Peter equation for sediment transport, an electronic computer program was developed to calculate section by section the following flow characteristics:

1. Water-surface elevation

2. Average velocity in the section

3. Sediment transportation capacity of the section.

These characteristics were computed using two types of mathematical models, one based upon the assumption that cross flows over the islands would equalize water stages in the south and north channels, and another which assumed that these channels were effectively divided and that different stages could exist in the two channels at the same station. Both models gave the same results as far as overall hydraulic capacity and total transport of sediment were concerned.

However, the second model in which the separate channels were assumed to be effectively divided by the islands was used for most of the subsequent analyses because it permitted the study of the differences in these three characteristics in the two channels at the same station.

## The Proposed Channels

Two possible arrangements of channels involving filling in of a portion of the present south channel were studied as shown in Exhibits 2 and 3. Each of these two arrangements was calculated for the same discharges that were used to analyze the present channels. The design of the south channel was first adjusted to achieve stable conditions; then, the amount of main or north channel excavation was adjusted to achieve flow characteristics which were equal or superior to the corresponding characteristics of the present channel. By trying one after another of possible excavation plans, the depths and widths of channel excavation were adjusted to achieve the following goals:

1. The same division of flow between north and south channels as presently exists at all possible stages and discharges.

2. More uniform sediment transportation capacity so as to reduce present tendencies to scour in some places and to fill in other places.

3. The same flood-passing ability as presently exists.

## Conclusions

The results of our studies are summarized in the following conclusions:

1. Either of the two proposed channel configurations (Exhibits 2 and 3) achieves the desired goals.

2. Scour problems which presently exist along parts of the Washington shore would be mitigated by the proposed new channels. This is particularly true in the vicinity of Sand Island.

3. Sediment transport capacity of the proposed channels would tend to be more uniform than it is in the present channel. This means that both scour and deposition would be diminished.

4. Flood-passing ability would be equal to or slightly greater than that of the present channels.

5. Scour protection along the Oregon shore in areas of channel curvature can be designed after selection of the desired plan (Alternative 1 or 2).

6. Scour protection along the Washington shore will not be required as a result of the proposed channels.

7. Method of closure of the south channel during construction would be determined after selection of the desired plan (Alternative 1 or 2).

8. Hydraulic model tests would not add to the understanding of the comparative performances of the present and the two alternative proposed channels.

9. In Alternative 1 there are a few locations where the average velocity for a given flood would be higher than the average velocity at the same location for the same flood under present conditions; however, in these locations the sediment transport capacity would still be less than it is under present conditions so that increased erosion would not result.

10. Alternative 2 would perform in much the same manner as Alternative 1, the major difference being in the reach downstream from the confluence of the south and north channels where both the average velocity and sediment transport capacity would be somewhat reduced as compared to Alternative 1. Alternative 2 would have in this reach essentially the same velocities as does the present channel, with significantly reduced sediment transport and erosion tendencies as compared to the present channel.

We find the proposed relocation of the south channel of the Columbia River at this location to be a sound and practical way to achieve the additional space which expansion of the airport would require. Either of the two proposed channel designs would result in more stable channels.

After one of the alternative plans has been selected, final design studies could be made covering details such as local scour protection at points of curvature on the Oregon shore, method of closure during construction, and cleaning of floating debris from the proposed lagoon. Preliminary studies of this lagoon indicate that pollution problems related to biochemical oxygen demand, coliform count, and related invisible measures of pollution would not be a problem. However, some further study should be given to the matter of floating debris, for which one type of solution is indicated on the drawings accompanying this report.

It has been a pleasure working with you on this project. We would be happy to discuss this report with you, your staff, or any other interested persons at your request. Thank you for the opportunity to study such an interesting proposal for which so much underlying data was available for analysis.

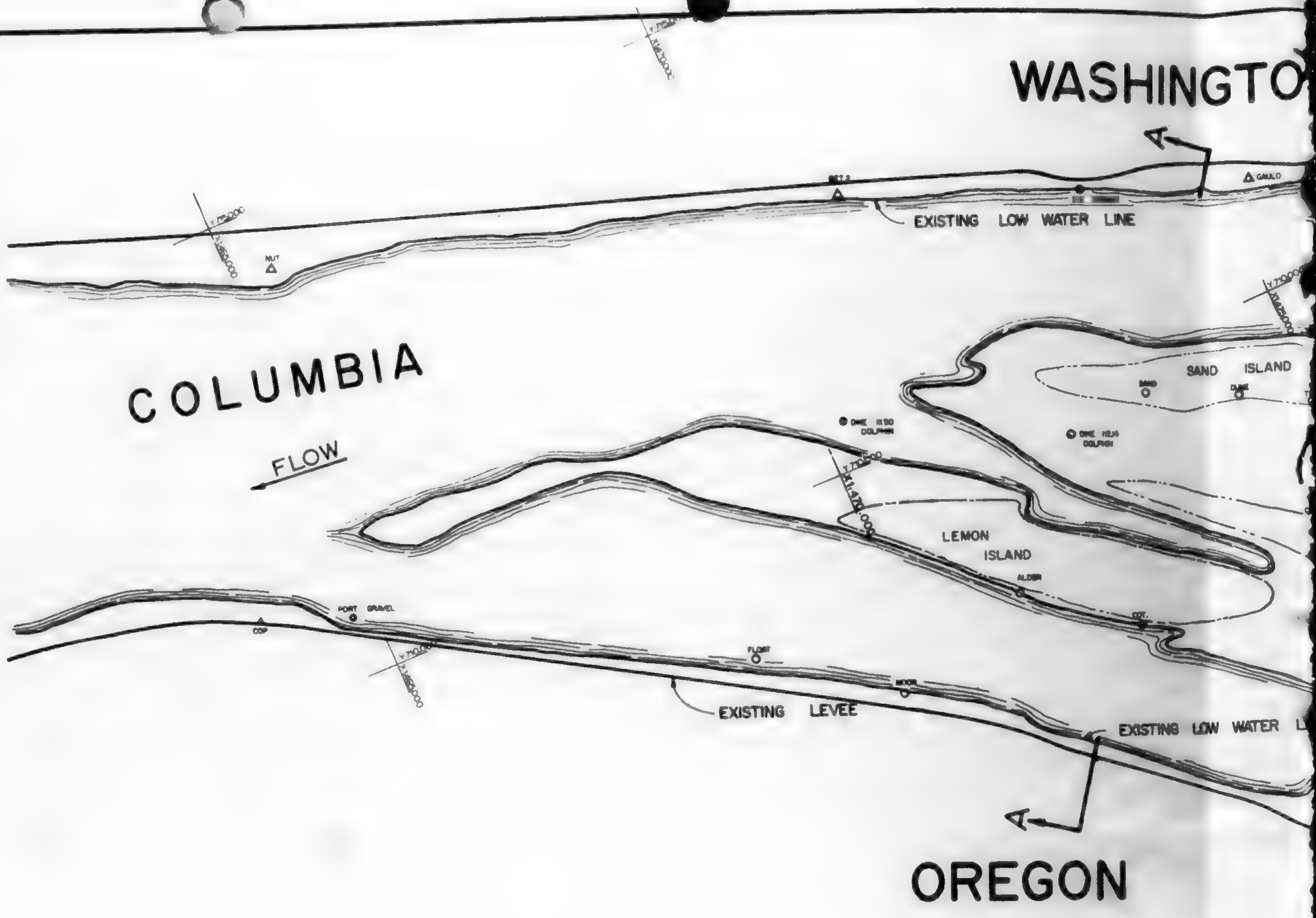
Sincerely,

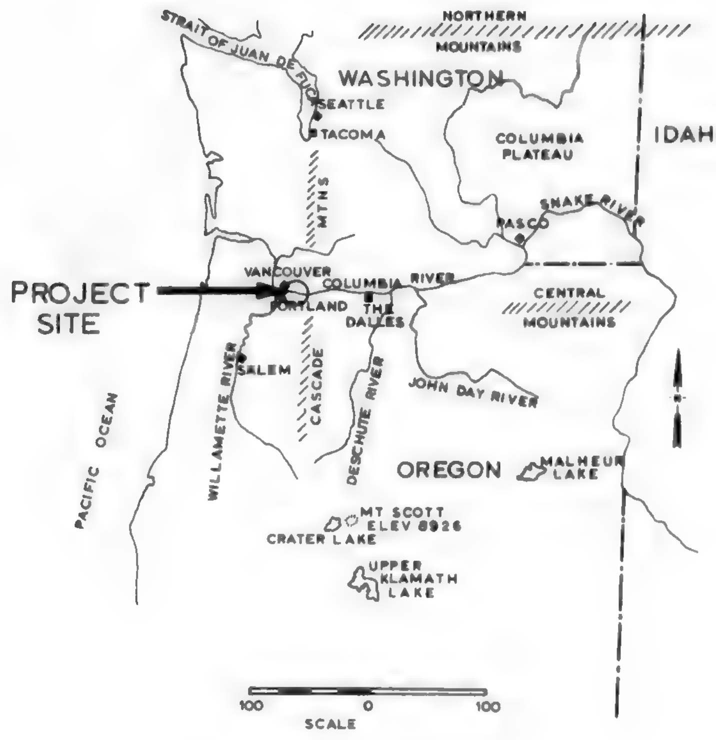
W. J. Bauer

W. J. Bauer
President

WJB:fb

Att: Exhibits 1, 2 and 3.

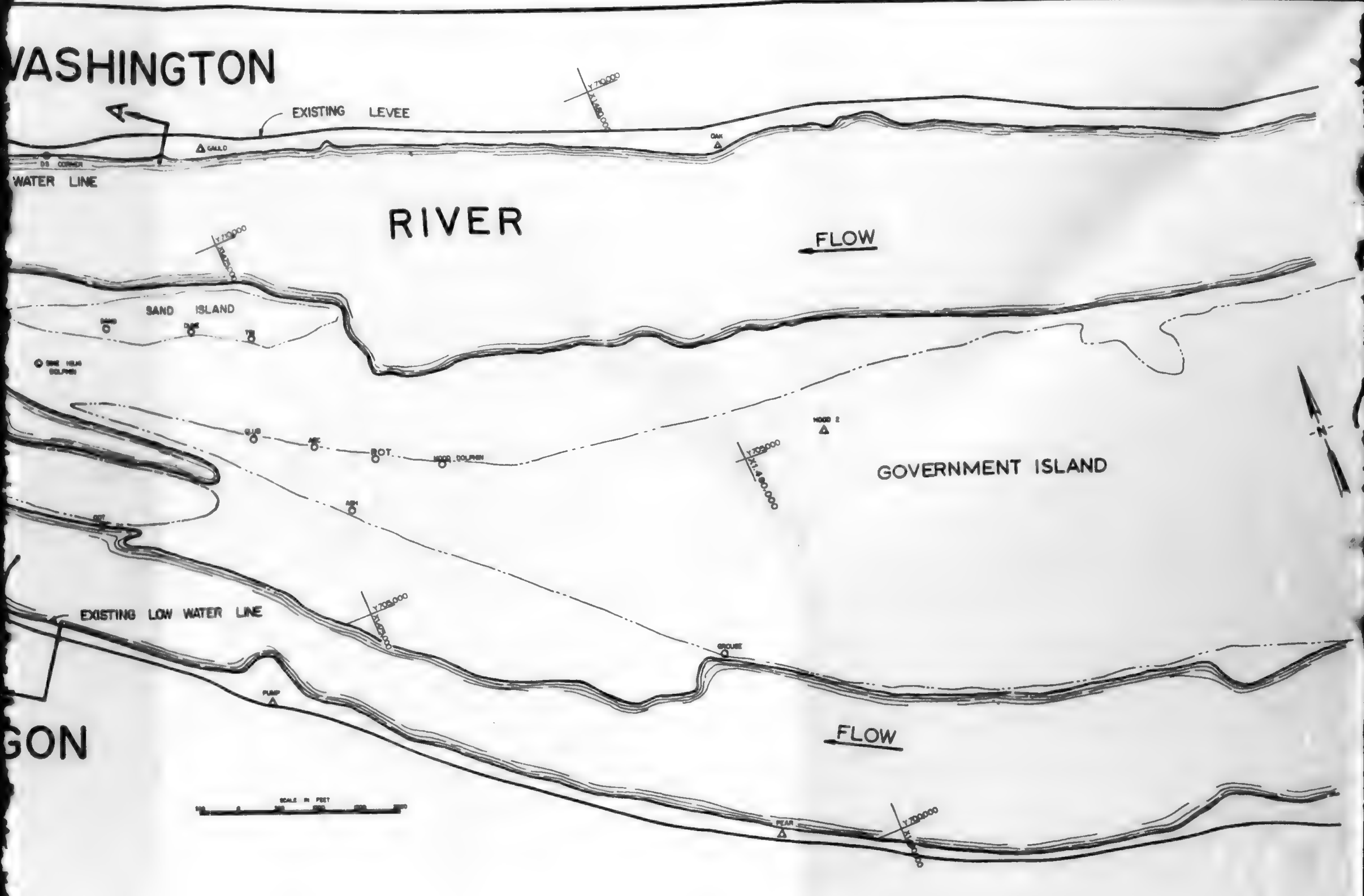

WASHINGTO
A
GAULD
EXISTING LOW WATER LINE
NUT
COLUMBIA
FLOW
SAND ISLAND
SAND
DUNE
DIKE 11.30 DOLPHIN
DIKE 11.26 DOLPHIN
LEMON
ISLAND
ALDER
PORT GRAVEL
COP
FLOAT
MOOR
EXISTING LEVEE
EXISTING LOW WATER L
A
OREGON


STRAIT OF JUAN DE FUCA
NORTHERN MOUNTAINS
WASHINGTON
SEATTLE
TACOMA
COLUMBIA PLATEAU
IDAHO
MTNS
PASCO
SNAKE RIVER
PROJECT SITE
VANCOUVER
COLUMBIA RIVER
PORTLAND
THE DALLES
CENTRAL MOUNTAINS
SALEM
CASCADE
JOHN DAY RIVER
WILLAMETTE RIVER
DESCHUTE RIVER
PACIFIC OCEAN
OREGON
MALHEUR LAKE
MT SCOTT ELEV 8926
CRATER LAKE
UPPER KLAMATH LAKE
100 0 100
SCALE

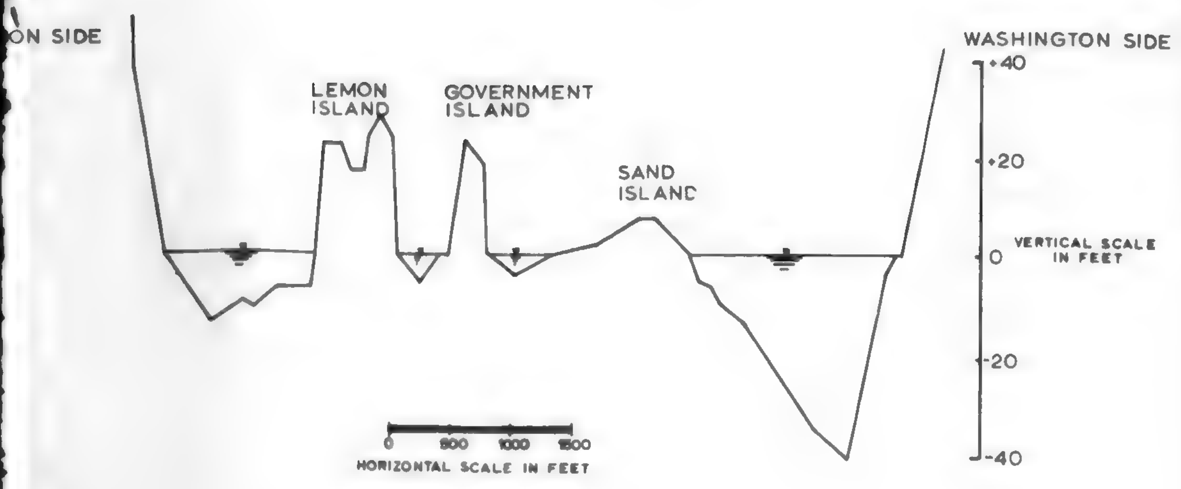
LOCATION MAP

OREGON SIDE
LEMO
ISLA
SE

EXHIBIT 1



WASHINGTON
EXISTING LEVEE
A
WATER LINE
RIVER
FLOW
SAND ISLAND
GOVERNMENT ISLAND
N
EXISTING LOW WATER LINE
GON
FLOW
SCALE IN FEET



ON SIDE
LEMON ISLAND
GOVERNMENT ISLAND
SAND ISLAND
WASHINGTON SIDE
+40
+20
0
-20
-40
VERTICAL SCALE IN FEET
0
800
1000
1600
HORIZONTAL SCALE IN FEET

SECTION A-A

PORT OF PORTLAND
PORTLAND, OREGON

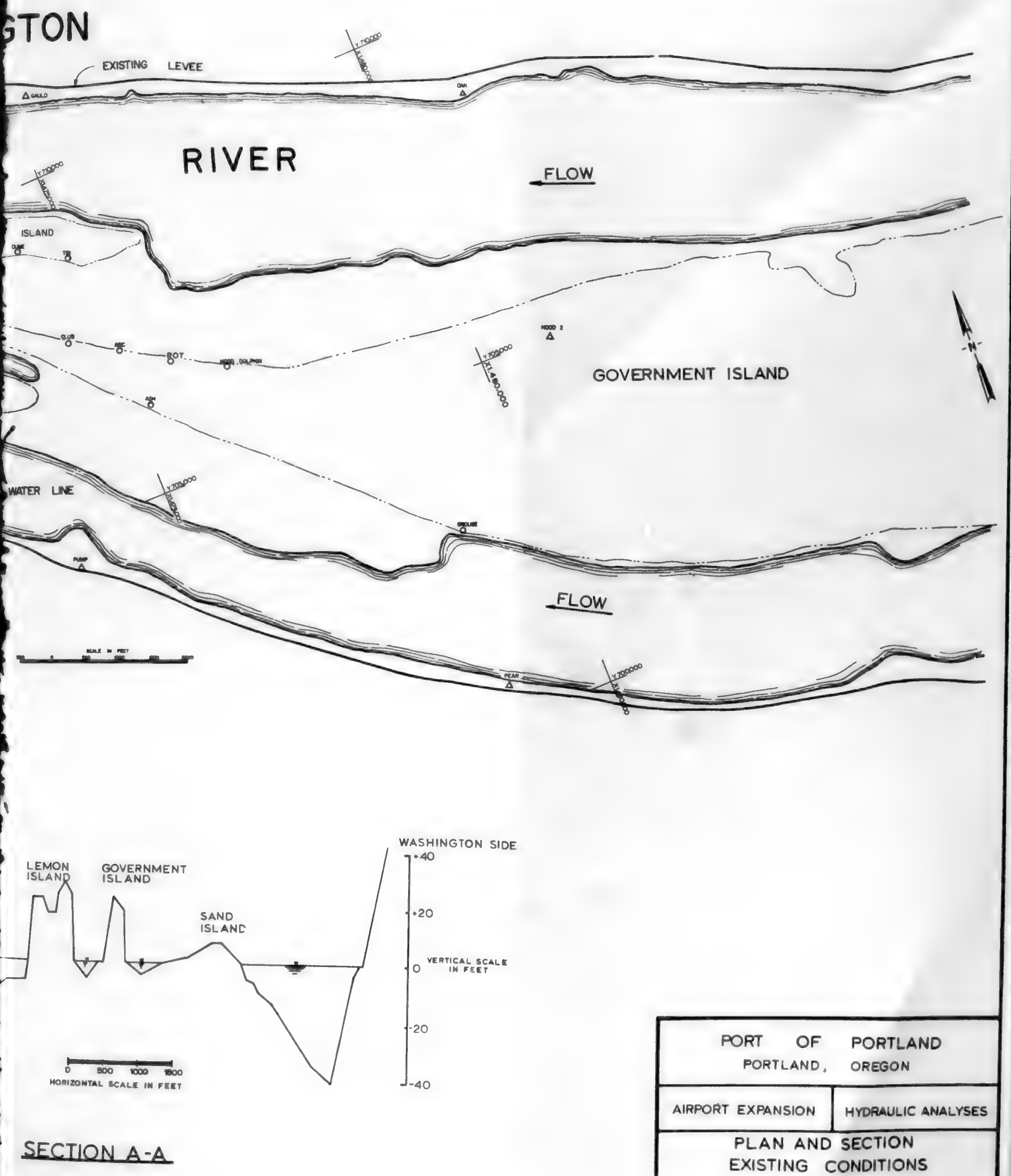
AIRPORT EXPANSION | HYDRAULIC ANALYSES

PLAN AND SECTION
EXISTING CONDITIONS

BY BAUER ENGINEERING INC.

CHICAGO, ILLINOIS | APRIL 1968 | SHEET 1 OF 1

EXHIBIT 1


GTON
EXISTING LEVEE
Y 710,000
GAULD
OAK
RIVER
FLOW
Y 710,000
ISLAND
DUKE
TRI
CUB
ABE
BOT.
HOOD DOLPHIN
HOOD 2
Y 705,000
X1,480,000
GOVERNMENT ISLAND
N
ASH
WATER LINE
Y 705,000
GROUSE
PUMP
FLOW
SCALE IN FEET
PEAR
Y 700,000
LEMON ISLAND
GOVERNMENT ISLAND
SAND ISLAND
WASHINGTON SIDE
+40
+20
0
-20
-40
VERTICAL SCALE IN FEET
0
500
1000
1500
HORIZONTAL SCALE IN FEET
SECTION A-A

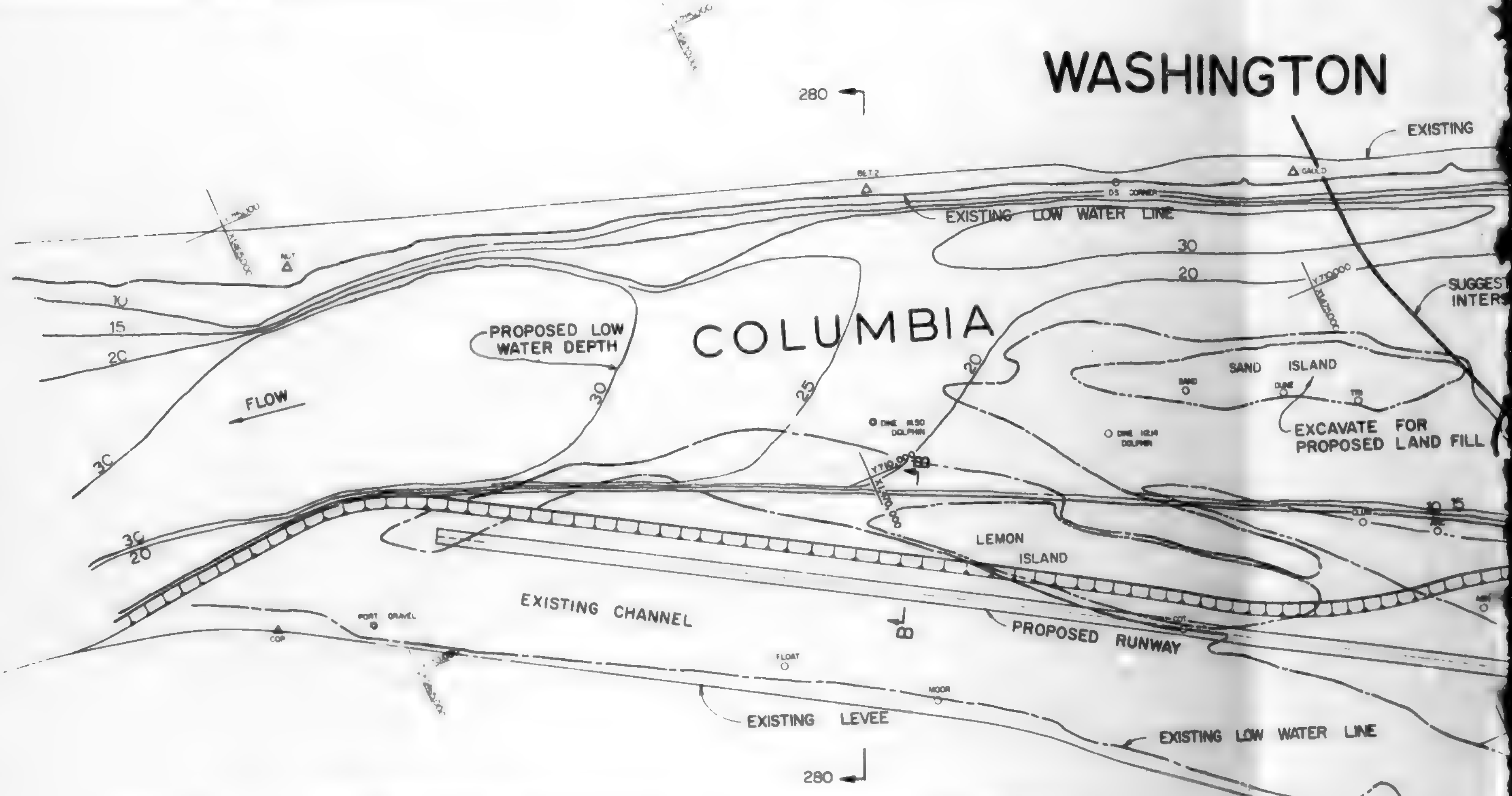
PORT OF PORTLAND
PORTLAND, OREGON

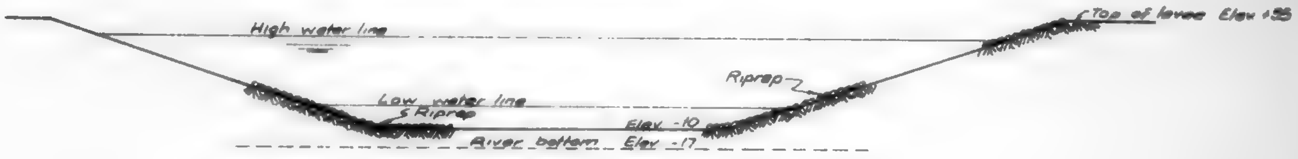
| AIRPORT EXPANSION | HYDRAULIC ANALYSES |
|---|---|

PLAN AND SECTION
EXISTING CONDITIONS

BY BAUER ENGINEERING INC.

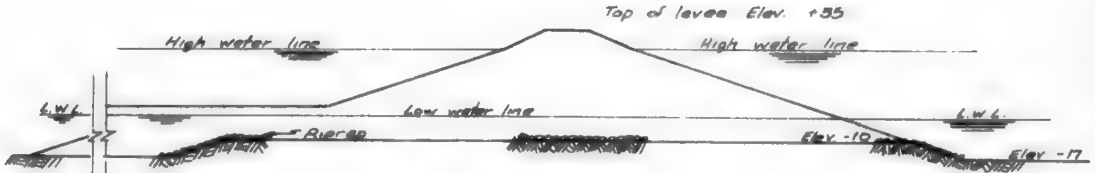
| CHICAGO, ILLINOIS | APRIL 1968 | SHEET 1 OF 1 |
|---|---|---|


WASHINGTON
280
EXISTING
EXISTING LOW WATER LINE
30
20
10
15
20
PROPOSED LOW WATER DEPTH
COLUMBIA
FLOW
30
25
20
30
20
SUGGEST
INTERS
SAND ISLAND
EXCAVATE FOR PROPOSED LAND FILL
DOLPHIN
LEMON ISLAND
EXISTING CHANNEL
B
PROPOSED RUNWAY
FLOAT
MOOR
EXISTING LEVEE
EXISTING LOW WATER LINE
280


Top of levee Elev +35
High water line
Riprap
Low water line
Riprap
Elev -10
River bottom Elev -17

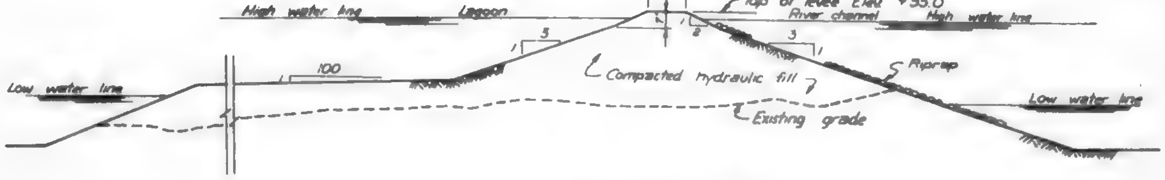
## SECTION D-D

40 0 40 80
scale feet


Top of levee Elev. +35
High water line
High water line
L.W.L.
Low water line
L.W.L.
Riprap
Elev -10
Elev -17

## SECTION C-C

40 0 40 80
scale feet


15'
Top of levee Elev +35.0
High water line
Lagoon
River channel
High water line
1 3
3 1
100
Low water line
Compacted hydraulic fill
Riprap
Low water line
Existing grade

## SECTION A-A

40 0 40 80
scale feet

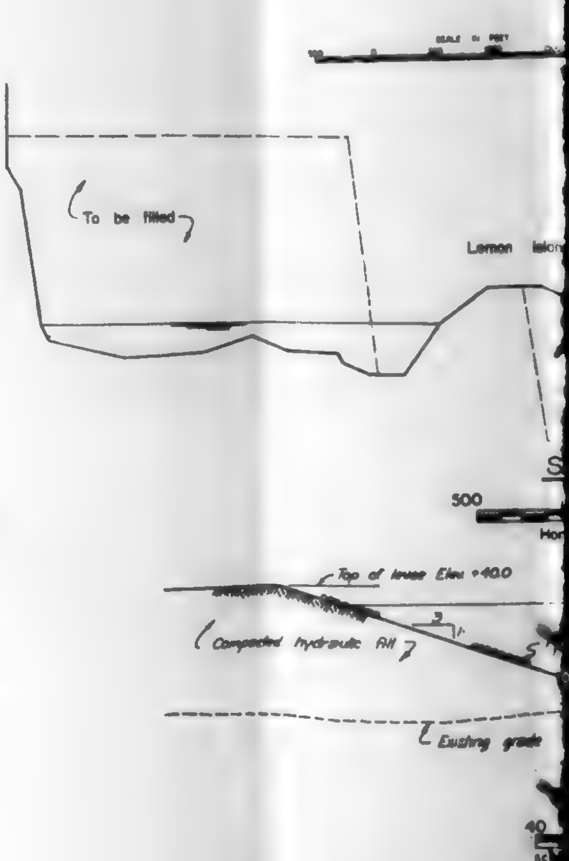
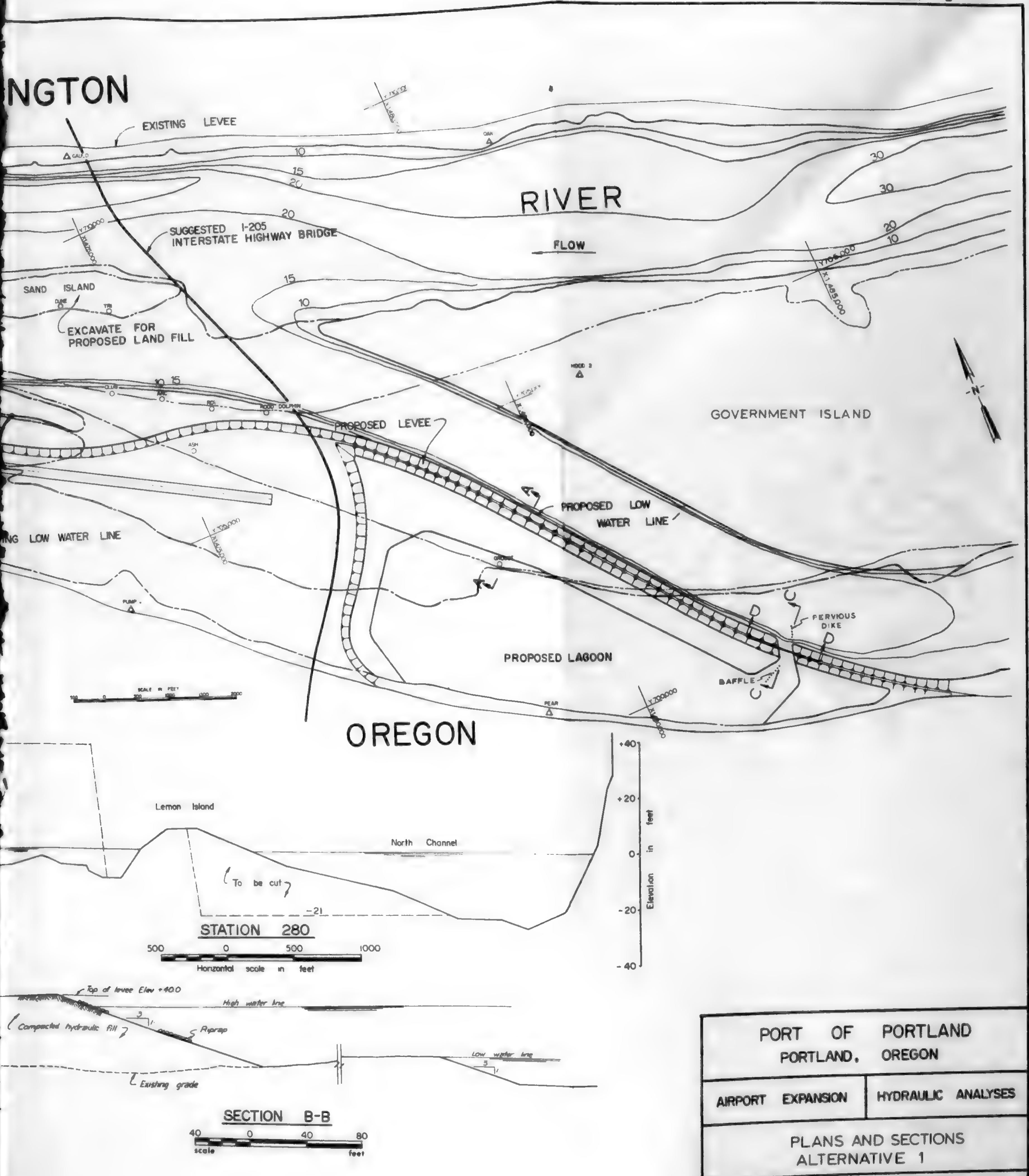

SCALE IN FEET
To be filled
Lemon Islan
S
500
Hor
Top of levee Elev +40.0
Compacted hydraulic fill
3
1
Existing grade
40
sc

EXHIBIT 2


NGTON
EXISTING LEVEE
RIVER
FLOW
10
15
20
30
SUGGESTED I-205
INTERSTATE HIGHWAY BRIDGE
SAND ISLAND
EXCAVATE FOR
PROPOSED LAND FILL
PROPOSED LEVEE
PROPOSED LOW
WATER LINE
GOVERNMENT ISLAND
N
NG LOW WATER LINE
PUMP
FERVIOUS
DIKE
PROPOSED LAGOON
BAFFLE
PEAR
A
C
D
SCALE IN FEET
OREGON
Lemon Island
North Channel
To be cut
-21
+40
+20
0
-20
-40
Elevation in feet
STATION 280
500
0
500
1000
Horizontal scale in feet
Top of levee Elev +40.0
High water line
Compacted hydraulic fill
Riprap
3
1
Low water line
5
1
Existing grade
SECTION B-B
40
0
40
80
scale
feet

PORT OF PORTLAND
PORTLAND, OREGON

| AIRPORT EXPANSION | HYDRAULIC ANALYSES |
|---|---|

PLANS AND SECTIONS
ALTERNATIVE 1

BY BAUER ENGINEERING INC.

| CHICAGO, ILLINOIS | APR. 1968 | SHEET 1 OF 1 |
|---|---|---|

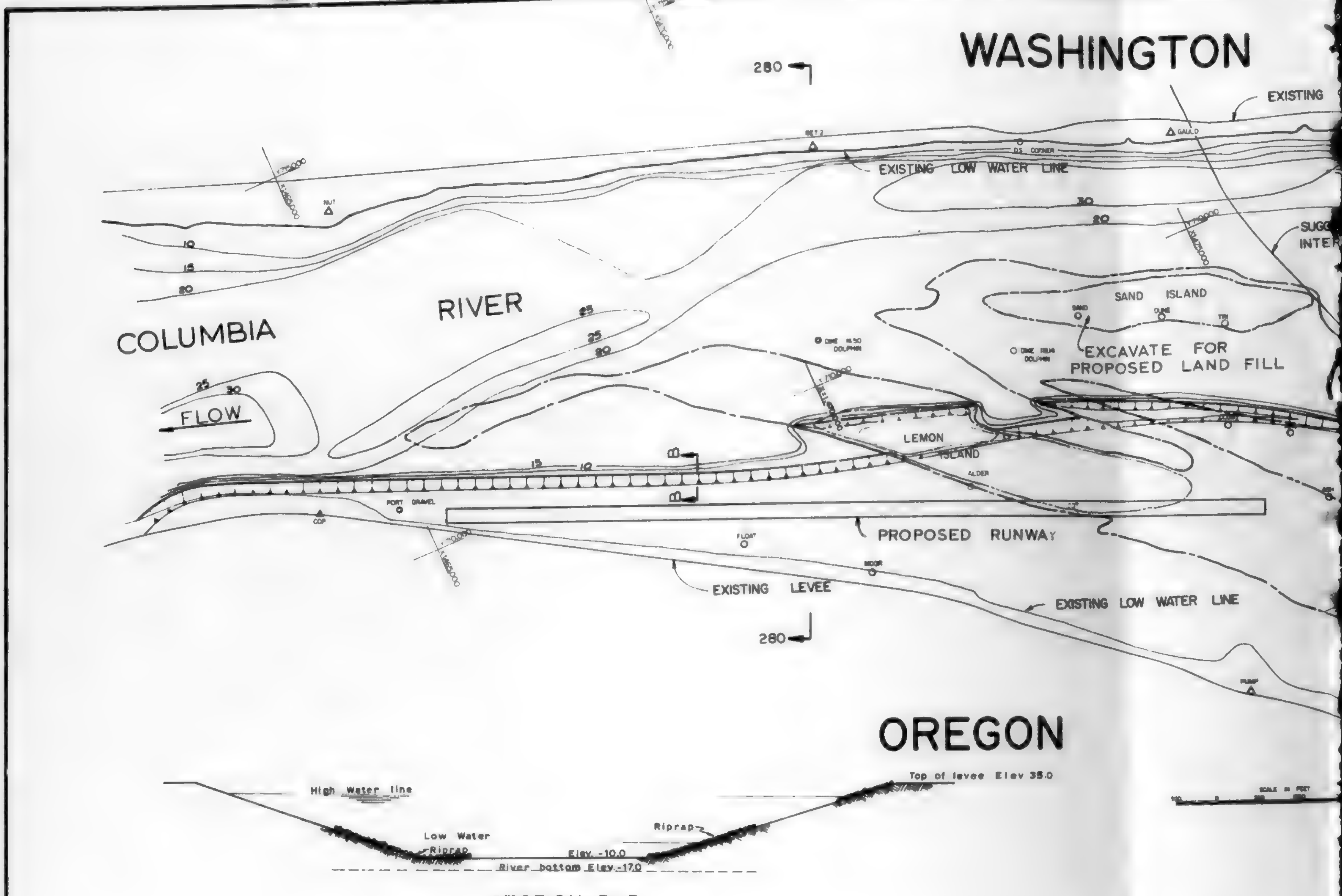
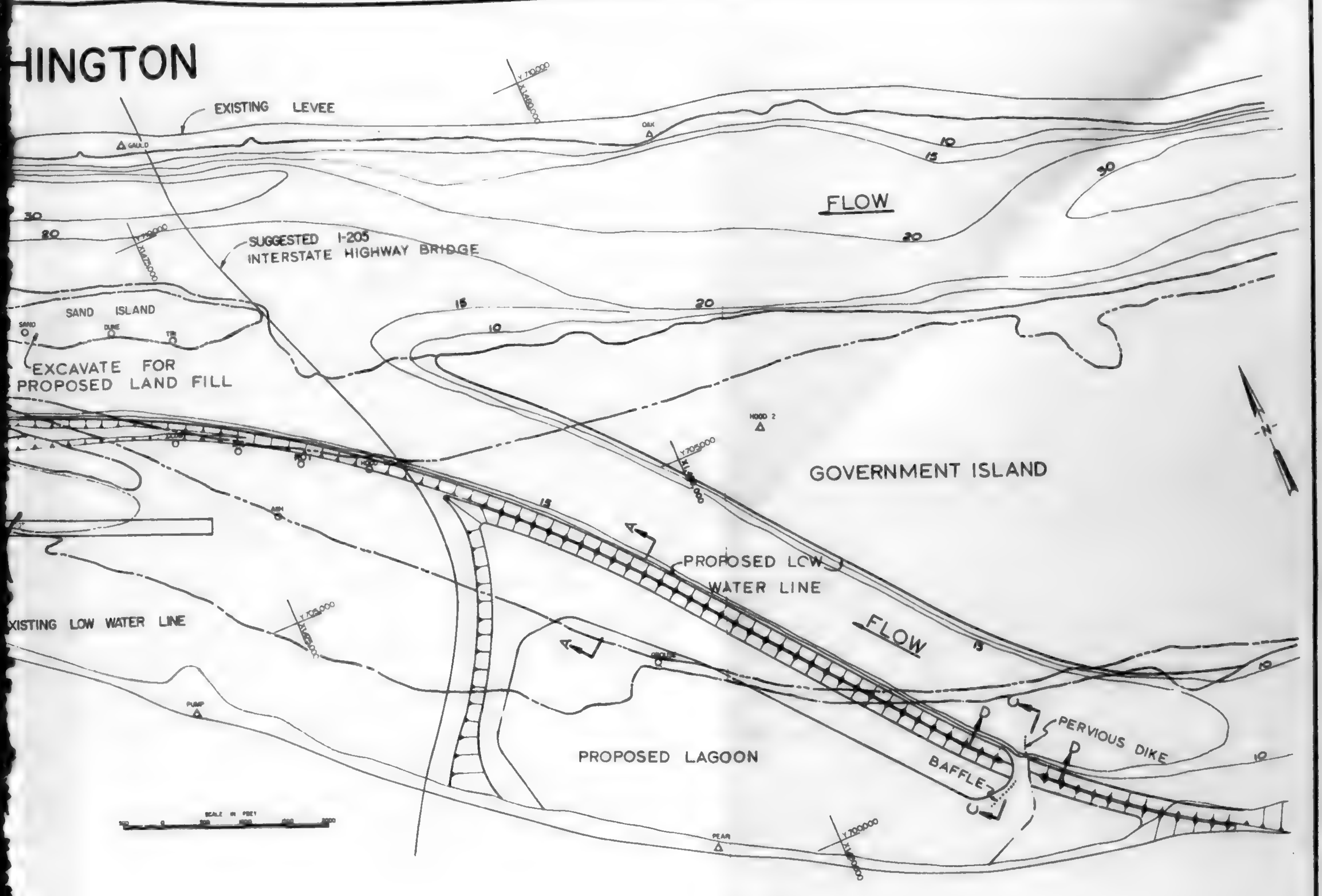
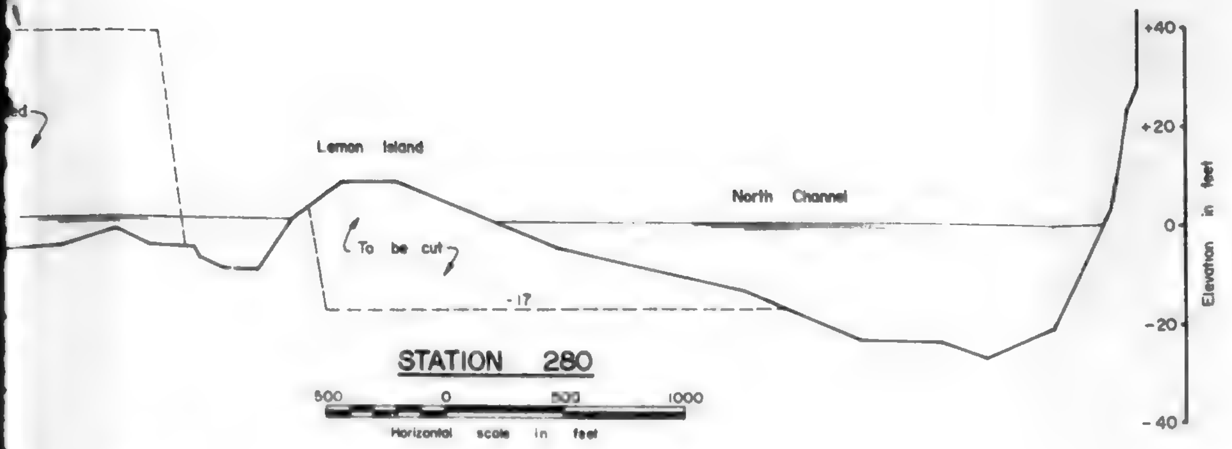

WASHINGTON
280
EXISTING
EXISTING LOW WATER LINE
SUGG
INTER
SAND ISLAND
EXCAVATE FOR PROPOSED LAND FILL
COLUMBIA RIVER
FLOW
10
15
20
25
30
LEMON ISLAND
ALDER
PORT GRAVEL
COP
PROPOSED RUNWAY
FLOAT
MOOR
EXISTING LEVEE
EXISTING LOW WATER LINE
PUMP
280
OREGON
High Water line
Top of levee Elev 35.0
Low Water
Riprap
Riprap
Elev. -10.0
River bottom Elev -17.0
SECTION D-D
40 0 40 80
scale feet
Top of levee Elev 35.0
High Water line
High Water line
Low Water line
Riprap
Elev. -10
Elev. -17
SECTION C-C
40 0 40 80
scale feet
15'
Top of levee Elev 35.0
High Water Lagoon
River channel High Water
3
1
100
compacted Hydraulic fill
Riprap
Low Water
Low Water line
Existing grade
SECTION A-A
40 0 40 80
scale feet
To be filled
Lemon Isl
To be
500
Top of levee Elev. 40.0
compacted Hydraulic fill
Ripr
Existing grade
40

EXHIBIT 3



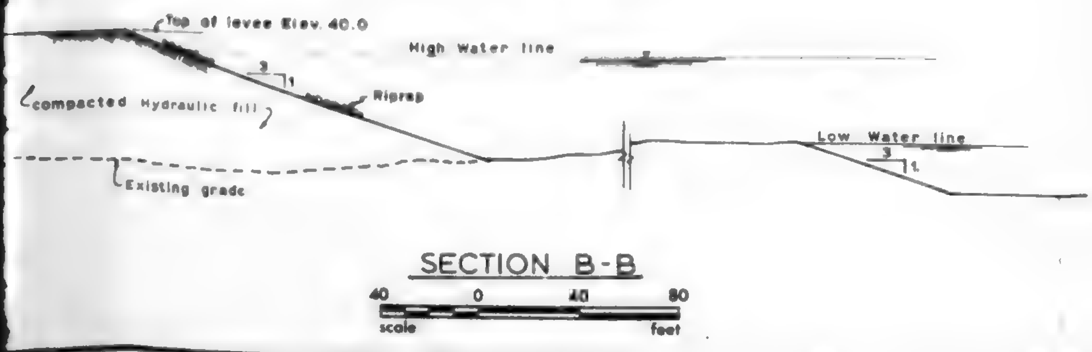
HINGTON
EXISTING LEVEE
FLOW
SUGGESTED I-205
INTERSTATE HIGHWAY BRIDGE
SAND ISLAND
EXCAVATE FOR
PROPOSED LAND FILL
GOVERNMENT ISLAND
PROPOSED LOW
WATER LINE
EXISTING LOW WATER LINE
FLOW
PERVIOUS DIKE
BAFFLE
PROPOSED LAGOON
A
B
C
D
N
30
20
15
10



Lemon Island
North Channel
To be cut
-17
+40
+20
0
-20
-40
Elevation in feet

STATION 280

500
0
500
1000
Horizontal scale in feet



Top of levee Elev. 40.0
High Water line
3
1
Riprap
compacted Hydraulic fill
Low Water line
3
1
Existing grade

SECTION B-B

40
0
40
80
scale
feet

NOTES:

1. SHORE PROTECTION TO BE DESIGNED AS NEEDED AFTER SELECTION OF FINAL PLAN.
2. EXACT DELINEATION OF BOUNDARIES OF LAGOON TO BE DETERMINED BY LAND USE PLANNING COMMISSION.

PORT OF PORTLAND
PORTLAND, OREGON

AIRPORT EXPANSION
HYDRAULIC ANALYSES

PLAN AND SECTIONS
ALTERNATIVE 2

BY BAUER ENGINEERING INC.

CHICAGO, ILLINOIS
APRIL 1968
SHEET 1 OF 1

# INTRODUCTION

This preliminary report presents the results of the hydraulic analyses which are part of the engineering for the expansion of the airport in Portland.

The purpose of this analysis is to design a stable new south channel and to avoid any undesirable effects, both upstream and downstream of the project area. Two steps were taken in the analysis. All the hydraulic elements in each section were computed under some known condition in the first step. The results of these computations were compared with observed values to verify the computation method. In the second step, the proper configuration of proposed channels (Alternative 1 and Alternative 2) was found by applying the same technique to a mathematical model to obtain an equilibrium sediment transportation capacity through the whole channel.

## Mathematical Models of the Channel

Two types of model were used in this analysis (Exhibit A). They are as follows:

1. Type A: The north and south channels were combined into a single channel with no piezometric head difference between them.
2. Type B: The north and south channels were treated as two independent channels with a piezometric head difference between them.

Type A was used in analyzing the coefficient of roughness and the effect of the cross current between the north and south channels. Type B was used in analyzing the flow profile and sediment transportation for each of three models. They were: (1) the existing channels, (2) proposed channel alternative 1, and (3) proposed channel alternative 2.

## Methods of Computation

### Flow Profiles

Computations of flow profiles were made by applying the standard step method with an electronic computer. The cross sections of the channel were divided into two parts, the main section and side section, which were assigned different coefficients of roughness. The modified equations used in the computer were as follows:

$$Z_1 + a_1 \frac{V_1^2}{2g} = Z_2 + a_2 \frac{V_2^2}{2g} + (S_{f1} + S_{f2}) \frac{\Delta X}{2}$$

$$K = \frac{1.486}{n} AR^{2/3}$$

$$A = (K^3_m A^2_m + K^3_s A^2_s)(A_s + A_m)^2 / (K^3_m + K^3_s)$$

$$S_f = (Q/(K_m + K_s))^2$$

Where,

$Z$ = water surface elevation in feet,

$V$ = mean velocity in feet per second,

$S_f$ = slope of the energy line,

$a$ = the Coriolis coefficient, (energy coefficient)

$\Delta X$ = the distance between the sections in feet,

$K$ = the conveyance of the section in cubic feet per second,

$A$ = the flow area of the section in square feet,

$Q$ = the flow through each section in cubic feet per second.

The subscripts 1, 2, m, and s represent section 1, section 2, main section, and side section respectively.

## Sediment Transportation

Many equations have been developed by scientists. Among them, Enstein's bed load function is widely accepted by most engineers. However, the computations are too complicated for engineering purposes. Less complicated Du-Boys or Meyer-Peter equations have been developed. Late in 1967, K. C. Wilson performed an experiment covering a wider range of shear stresses than the Gilbert's, Meyer-Peter and Chien's experiments, and proved that Meyer-Peter's equation agrees well with the experimental results within the range of low shear stress which pertains in our reach of the river.

The comparison of the Meyer-Peter's bed load function is shown in Exhibit B. The upper graph was plotted from Nig Chien* and the lower graph was plotted by using sediment particle size found within this project location. As can be seen, the Einstein's equation has a steeper slope than does the Meyer-Peter's equation in the range of shear stress in which we are interested. That is, the difference in the sediment transportation capacity which the Meyer-Peter's equation would give between the existing and the proposed conditions is smaller than the corresponding difference calculated by the Einstein equation. In addition, the differences between these two equations is within the range of the scatter of the underlying experimental data, as can be seen in the Ning Chien's plot. Either the Meyer-Peter's equation or the Einstein's equation can be used for the engineering purposes at hand. We selected the Meyer-Peter's equation because it gives more conservative estimates of the reductions in scour which the proposed channels would achieve, and because it is easier to use. The Meyer-Peter's equation which was used in the analysis is:

---

*Chien, Ning "The Present Status of Research on Sediment Transport", Trans. ASCE Vol. 121, 1956.

$$Q_B = 0.0552B\,(T-T_c)^{1.5} \times W_s$$

Where,

$Q_B$ = the rate of sediment transportation in pounds per second

$B$ = the width of the channel in feet,

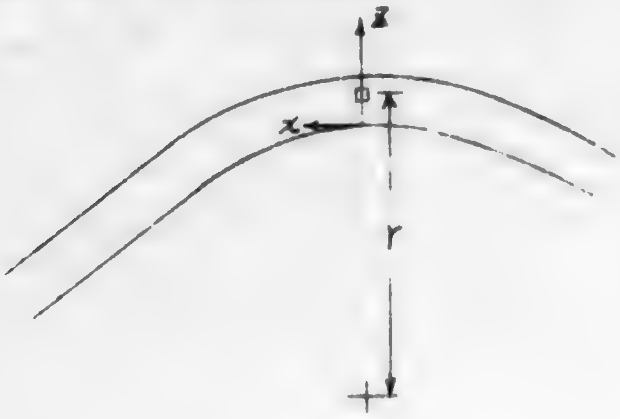
$T$ = tractive force in pounds per square foot,

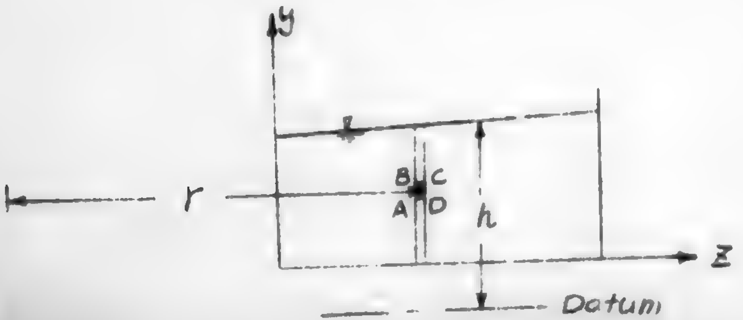
$T_c$ = the critical tractive force in pounds per square foot

$W_s$ = unit weight of sediment in pounds per cu. ft.

## Spiral Flow Around the Bend

Much work has been done in analyzing the phenomenon of spiral flow. However, none of the analyses can be applied to our problem, since all analyses have dealt with specific cases and a generalized method has not been developed. We have developed a more general method of analysis from which, an approximate value of spiral flow intensity can be calculated.





Using the notation shown in the definition sketch, the equation of motion for the small element ABCD can be written as follows:

$$\rho g \frac{\partial h}{\partial z} \partial z \partial y \partial x - \frac{\partial \tau}{\partial y} \partial y \partial x \partial z = \rho \partial x \partial y \partial z \frac{u^2}{r}$$

or

$$g \frac{\partial h}{\partial z} - \frac{1}{\rho} \frac{\partial \tau}{\partial y} = \frac{u^2}{r} \qquad (1)$$

And the equation of continuity is:

$$\int_{h_1}^{h_2} w \, dy = 0 \qquad (2)$$

Where,

$g$ = the gravitational acceleration in feet/sec$^2$

$h$ = Water surface elevation in feet from some assumed datum

$\tau$ = the shear stress in pounds per square foot

$r$ = the radius of curvature of horizontal streamlines in feet

$u$ = the velocity in the direction of main flow flow and is a function of y

$w$ = the velocity in feet per sec. in the direction normal to the main velocity

$\rho$ = density of water in slugs per cubic feet

In solving this we introduce the relationship:

$$\tau = \rho K y \left| \frac{\partial W}{\partial y} \right| \frac{\partial W}{\partial y} \qquad (3)$$

Where,

$Ky$ = turbulent mixing length

$K$ = Karman's constant

Substituting Eq (3) for Eq (1), we develop:

$$\left|\frac{\partial W}{\partial y}\right| \frac{\partial W}{\partial y} = \frac{1}{0.32\rho y}\left(g\frac{\partial h}{\partial z} - \frac{u^2}{r}\right) \qquad (4)$$

Thus, the spiral flow can be analyzed by solving Eq (2) and (4). As a simplifying first approximation, the friction can be ignored. Later, the magnitude of the friction was estimated and its effect found to be negligible. The results are discussed in a subsequent section.

## Channel Characteristics

### Design Flood

The largest flood of record at this site has been estimated to have a peak discharge of 1,240,000 cfs (1894). However, after completion of the current Canadian storage projects, a lesser maximum flood is to be expected. A design flood of 700,000 cfs, which is judged to approximate the 100-year flood, was used for the maximum flood stage computations. Another design flood of 400,000 cfs was used to test the stability of the new south channel sections, because floods of this magnitude will occur more frequently.

### Stage-Discharge Relationship

An existing USGS gaging station on the north river bank at the Interstate Highway 5 Bridge was established as station 00 of the mathematic model. The stage-discharge records at that station from June 1964 to June 1965 were used to plot the stage-discharge curve shown in Exhibit C.

## Stream Bed Materials

A reconnaissance survey of the site revealed an important difference in the materials comprising the south bank and the north bank. The bed material of the north bank is a mixture of gravel and coarse sand with interbedded layers of cohesive clay and weak sandstone, while the bed material of the south bank is a mixture of fine sand. We agreed with Mr. Beeman that a mean size of 0.8 mm might reasonably be used for the analysis of sediment transportation. This value has been used in earlier studies of sediment transportation in the Columbia River.

## Coefficient of Roughness

Studies of the coefficient of roughness were previously made by Mr. Beeman and the USGS for other reaches of the river. In order to determine the actual coefficient of roughness for our reaches and check these studies independently, a series of flow profiles was computed, using the actual 1964 flood of record and several assumed n values. The results were compared with the observed water surface elevations (Exhibit D). An n value of 0.025 for the main section and 0.050 for the side section resulted in a profile most closely approximating the observed profile. The same values of roughness coefficient were also applied to type A model to compute the flow profile and mean depth for flows of 400,000 cfs and 700,000 cfs. For the mean depths corresponding to these flows, the graph of the Port of Portland shows n values of 0.0253 and 0.0240 respectively, for the main channel, compared to 0.025 selected by us.

Applying the same n values obtained from the above computations to the type A model, equivalent n values for the whole section (main + overbank) through total reach were computed. The results are shown in Exhibit E. The mean values were plotted against various rates of flow and compared with the n values used by the USGS (Exhibit F).

From the comparison with the actual flood record and from evaluation at the conclusions of the USGS and the Port of Portland, the assumed n values of 0.025 in the main section and 0.050 in the side section for both high and low flows were judged to be the most reasonable values to use for the flow profile computation.

## Losses through the Pervious Dike

Losses through the pervious dike at the entrance to the south channel were computed for various tailwater conditions and various flow rates. The results are shown in Exhibit G.

The calculation was based on the geometry at the dike assuming 3 types of flow: (1) submerged weir; (2) open-channel constriction; and, (3) a number of orifices between piling. The assumptions give results which are compatible with prototype measurements (Exhibit S).

## Configuration of the Proposed Channel

Trial computations were made in order to obtain a stable new south channel. The results of the computations indicate that a south channel 17 feet deep and 1200 feet wide would be the most stable. A plan view of the proposed south channel is shown in Exhibit A for both of the Alternative 1 and Alternative 2.

## Effects of the Cross Current Between the North and South Channels

A cross current between the south and north channels would occur if there is a difference in piezometric head and the elevation of the bank dividing those two channels is lower than the water surface. Such secondary flow would reduce the difference of water surface level and sediment transportation intensity in the two channels. The effects of the cross current would increase with the increase of flow.

In order to check the effect of the cross current during the design flood, the same rate of flow was applied to both type A model and type B model. The results (Exhibit H) show that the flow profile and sediment transportation are affected only slightly by the cross current.

## Computations and Discussion of Results

### Flow and Velocity Profile

The results of the flow profile and velocity profile for flows of 700,000 cfs, 400,000 cfs, and 100,000 cfs are shown graphically in Exhibits I, J, K, L and M. Exhibit N shows the drop of the water surface over the entire project for both existing and proposed condition for various rates of discharge. The results show that the proposed channel would lower the flood stage, when Q = 700,000 cfs, by only 0.07 feet at the upstream end of the project.

The bridge has not been designed. However, we have assumed the typical spans to be 200 feet and have therefore assumed 27 piers typically 10 feet wide. Based on these assumptions, we estimated the head loss through the piers to be about 0.06 feet by using the D'Aubussion formula (Q = 700,000 cfs). This factor will raise the water surface of about 0.06 feet at the upstream end of the project. Therefore, the proposed channel will not appreciably change the hydraulic characteristics at the upstream end of the project area.

## Sediment Transportation Profile

Sediment transportation profiles for flows of 700,000 cfs, 400,000 cfs, and 100,000 cfs and are shown graphically in Exhibits O, P, Q and R. They show that the proposed south channel would have a relatively uniform capacity to transport sediment through the design reach.

## Flow Division Between North Channel and South Channel

The results of computations for the division of flow between the south and north channel were plotted against the rate of flow through the combined channel and are shown in Exhibit S for both the existing and proposed channels. The division of flow for the same reaches was observed by J. C. Sonnichsen in February 1968; his observations are plotted on the same exhibit, which shows that the observed and the computed values compare favorably.

## Effects on the North (Washington) Shore

The results of our analysis of the existing flow characteristics of the channel shows a higher-than-average sediment transportation capacity in the reach from Sta 220 to Sta 320. As a result, the section has been enlarging and the north shore receding as shown on Exhibit T. Information obtained continuously from 1935 to 1967 indicate that the north shore in this reach has been subject to scour under existing conditions.

Exhibit T shows an example of the continuously observed cross section at Sta 320. These results confirm the same fact obtained from the mathematical analysis.

As shown in Exhibits O, P (Alternative 1), Q and R (Alternative 2), the new channel will have a lower sediment transportation capacity for all stages and have a better continuity in sediment transportation. The reaches around the confluence of the north channel and the south channel were designed to have a streamlined shape, and have approximately the same velocity of approach (4.5 fps to 4.3 fps when Q = 700,000 cfs). Since the flow through the north channel is approximately twice as big as the flow through the south channel, the disturbance at the north shore due to the confluence of the south channel is negligible.

The spiral flow around the section at Sta 340 was computed and the results shown in Exhibit U for both of the main flow and the spiral flow. The results of this computation show that the maximum intensity of spiral flow is on the order of 0.20 ft/sec, and show the effects due to secondary flow are greater on the Oregon side, but on neither side is the effect significant. Certainly there would be no measurable change in sediment transportation along the Washington shore because of spiral flow.

In general, the proposed channel would have a lesser scouring potential and the existing scouring problems on the Washington side will be diminished by the proposed project. Details of the improvements are shown in the following table.

| Floods | Q = 400,000 cfs | | | Q = 700,000 cfs | | |
|---|---|---|---|---|---|---|
| Conditions | Exist | Alt. 1 | Alt. 2 | Exist | Alt. 1 | Alt. 2 |
| Station | Sediment Transportation Capacities (pds/sec) | | | | | |
| 180 | 343 | 343 | 343 | 807 | 807 | 807 |
| 200 | 406 | 355 | 339 | 931 | 845 | 846 |
| 220 | 529 | 365 | 373 | 1100 | 968 | 895 |
| 240 | 532 | 364 | 400 | 952 | 980 | 866 |
| 260 | 718 | 371 | 431 | 1096 | 942 | 881 |
| 280 | 633 | 419 | 392 | 1025 | 956 | 828 |
| 300 | 613 | 372 | 338 | 965 | 849 | 808 |
| 320 | 695 | 436 | 336 | 1155 | 953 | 817 |
| 340 | 536 | 468 | 430 | 813 | 940 | 904 |
| 360 | 512 | 375 | 375 | 807 | 770 | 774 |
| 380 | 566 | 505 | 507 | 874 | 906 | 981 |
| | Mean Velocities in the Main Section (ft/sec) | | | | | |
| 180 | 3.4 | 3.4 | 3.4 | 4.5 | 4.5 | 4.5 |
| 200 | 3.6 | 3.5 | 3.5 | 4.7 | 4.6 | 4.7 |
| 220 | 3.7 | 3.8 | 3.5 | 4.9 | 5.2 | 4.7 |
| 240 | 3.4 | 3.9 | 3.4 | 4.3 | 5.3 | 4.4 |
| 260 | 3.6 | 3.7 | 3.4 | 4.3 | 5.0 | 4.4 |
| 280 | 3.5 | 3.6 | 3.3 | 4.2 | 4.8 | 4.3 |
| 300 | 3.9 | 3.5 | 3.4 | 4.5 | 4.6 | 4.5 |
| 320 | 4.3 | 3.6 | 3.4 | 5.0 | 4.7 | 4.6 |
| 340 | 3.8 | 3.5 | 3.5 | 4.3 | 4.5 | 4.5 |
| 360 | 3.4 | 3.2 | 3.2 | 3.9 | 4.1 | 4.1 |
| 380 | 3.8 | 3.9 | 3.9 | 4.3 | 4.5 | 4.6 |

## The Effects of the Overdredging in the Main Channel

The preliminary earthwork computations show in order to obtain enough fill material to accomplish Alternative 1, an additional 13,700,000 cubic yards must be obtained by overdredging the main channel between Sta. 180 and Sta. 360. As a result, a certain amount of water-surface draw-down and increasing sediment transportation would be expected. Exhibit V and W shows the comparison of the flow profile and the sediment transportation capacity between the overdredged channel and the proposed equilibriumed channel. The results show there will be only a 0.2 ft. difference in water-surface elevation between the proposed equilibrium channel and the overdredged channel and about a 6 per cent increase in the sediment transportation capacity. In future years, the difference between the two channels will be reduced since the overdredged channel will tend to fill to more closely equal to the equilibriumed channel and the upstream channel will be deepen through self-erosion.

We conclude, therefore, the effects of the overdredging for Alternative 1 are negligible and will cause no adverse effect.

## Possible Hydraulic Model Test

The analysis performed herein is based on the theory of one-dimensional analysis. The mean velocity was used in computing the hydraulic characteristics of each section. This method of analysis has been proven to have sufficient accuracy in analyzing the flood stage and the continuity of sediment transportation.

Sediment-transportation and flood-passing characteristics of natural streams are two aspects of river hydraulics which are not subject to independent analysis by physical models operated in hydraulics laboratories. In fact, when hydraulic models are used for other purposes, mathematical analyses (such as those reported here) are made to evaluate sediment-transportation and flood-passing characteristics in the actual river so that the model can be manipulated to reproduce approximately the same behavior.

The reason for this inability to use physical models to evaluate these aspects of river behavior lies primarily in one fact: viscosity of the fluid is an important factor in both sediment transportation and hydraulic friction problems, and viscosity of the fluid cannot be properly scaled in a physical model of a river. To compensate for the resulting distortions in the model, various techniques are used in the laboratory, such as using plastic particles with low specific gravity to represent sand particles, and attaching artificial roughness elements to the model channel in order to reproduce the calculated stage-discharge relationships.

Hydraulic model tests are therefore not appropriate for evaluating the problems analyzed in this study.

## Pollution in the Lagoon

Preliminary studies of the potential pollution in the proposed recreational lagoon indicate that invisible pollution such as biochemical oxygen demand, coliform count, and nutrient build-up will not be a problem. The reason for this is the relatively large area and volume of the lagoon compared to the probable magnitudes of such loadings, and the turnover of water which will result from annual flooding and from the normal tidal fluctuations. The shape of the inlet to the lagoon is important in securing the circulatory benefit which can be developed from the tidal effect. The principal problem will probably be in the floating materials which will be driven about by wind more than by the currents which will develop in the lagoon. Further study of this aspect of the problem can wait until the land-use plan for this area has been completed.

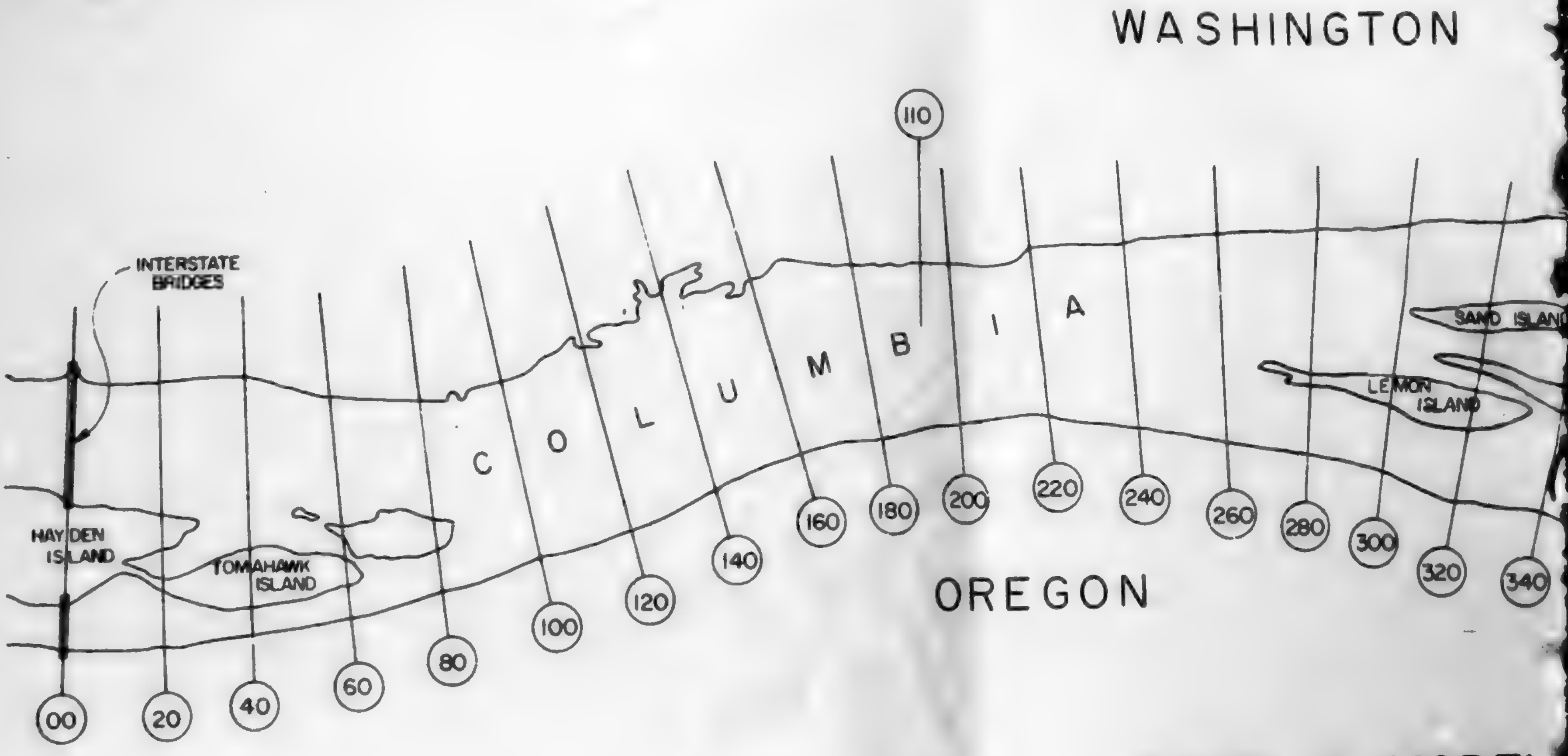
## CONCLUSIONS

The purpose of this analysis was to design proposed main and south channels which would be equal or superior to the existing channel in flood-passing and sediment-handling characteristics.

Two kinds of mathematical models were used in analyzing the problems. One was used to analyze the general nature of the reach, and the other was used to simulate the prototype. Some investigations of n values were made in addition to the studies made by the USGS and the Port of Portland

The results show that the adopted value of n agrees with the values used by the USGS and the Port of Portland.

The results of our computations indicate that the proposed 1200 feet wide by 17 feet deep south channel would be stable and the water surface elevation would not significantly change as compared to the existing condition(Q = 700,000 cfs). The sediment transportation capacity would in general be less than the capacity under existing conditions. We conclude that there would be no significant undesirable effects either upstream or downstream from the project area and that the erosion problem along the Washington shoreline would be improved to some extent.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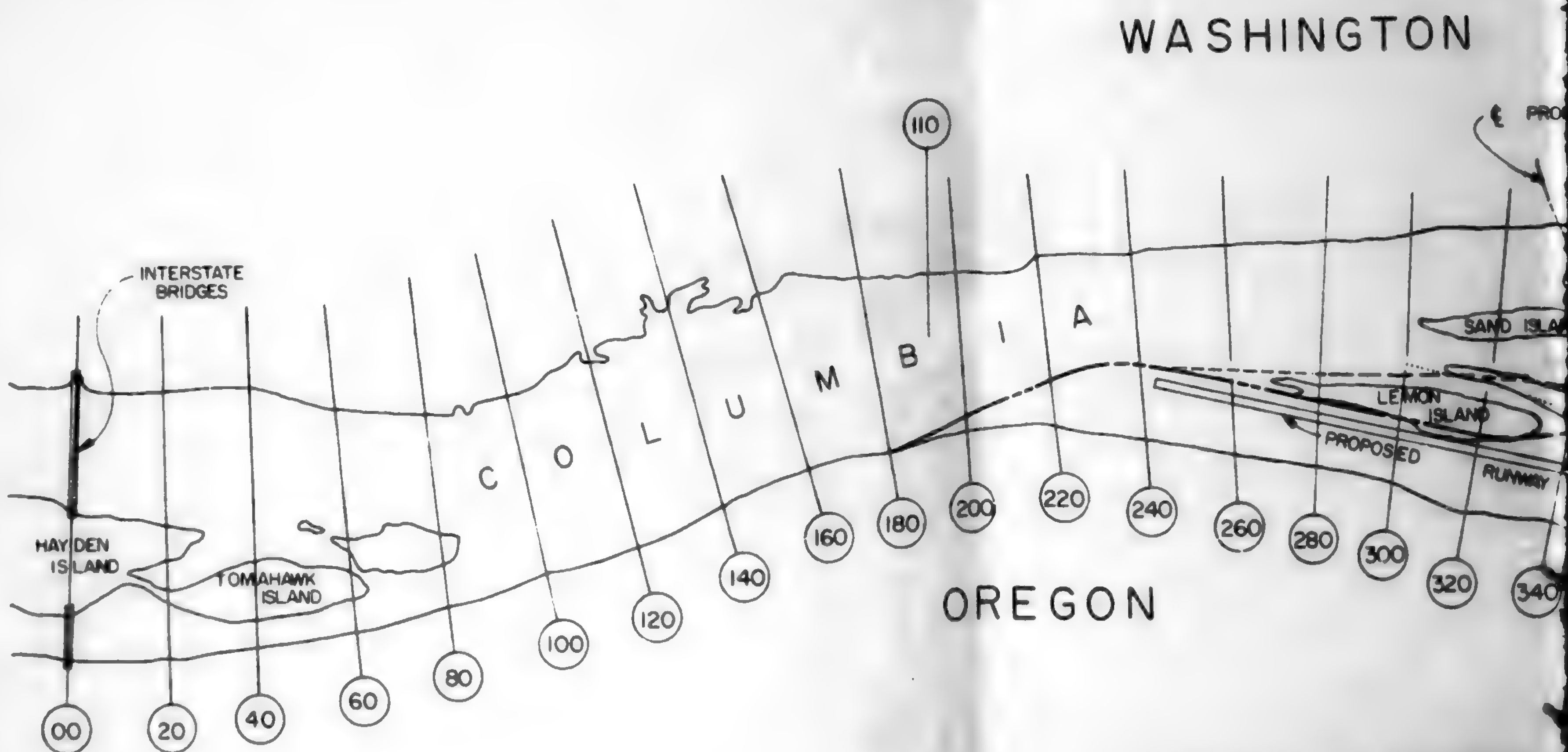
TYPE A MODEL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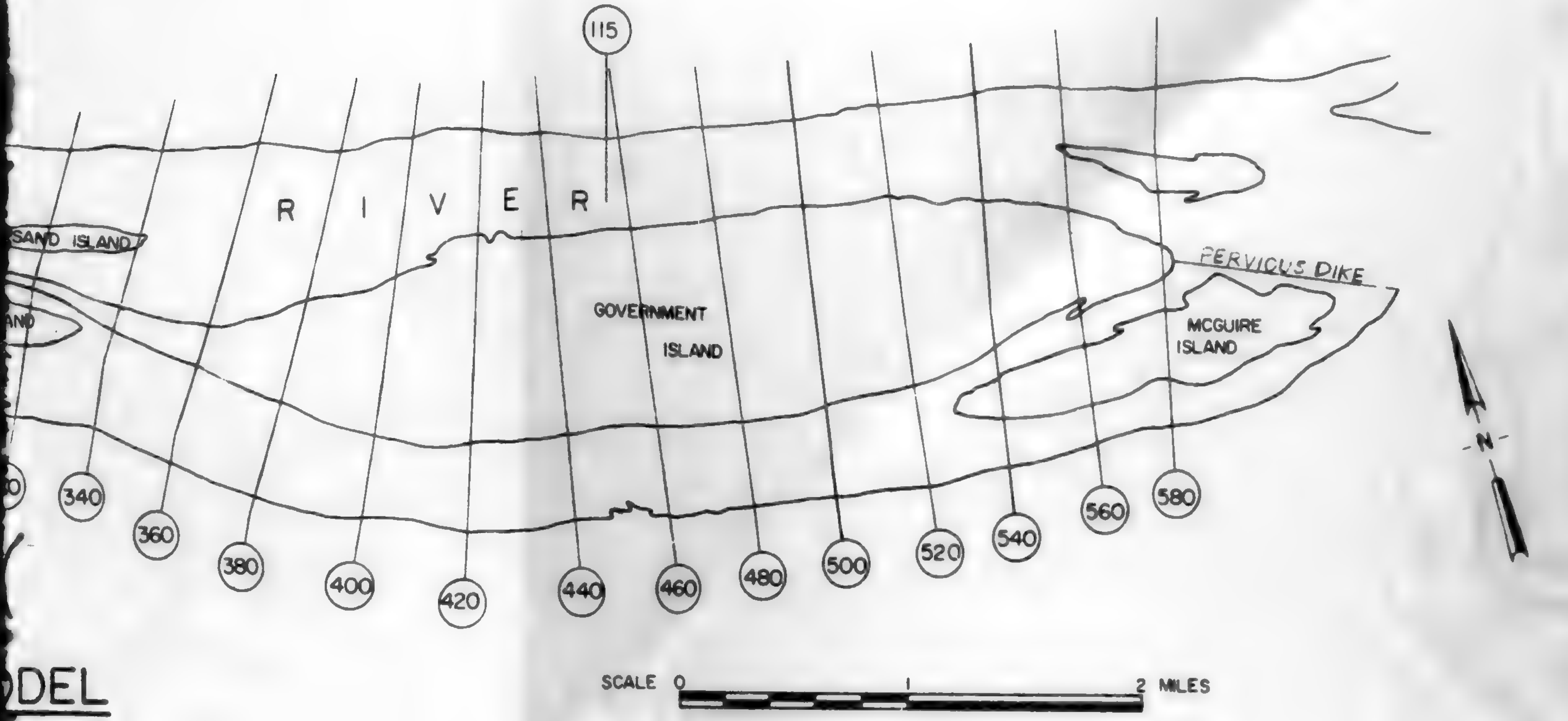
TYPE B MODEL

EXHIBIT A

N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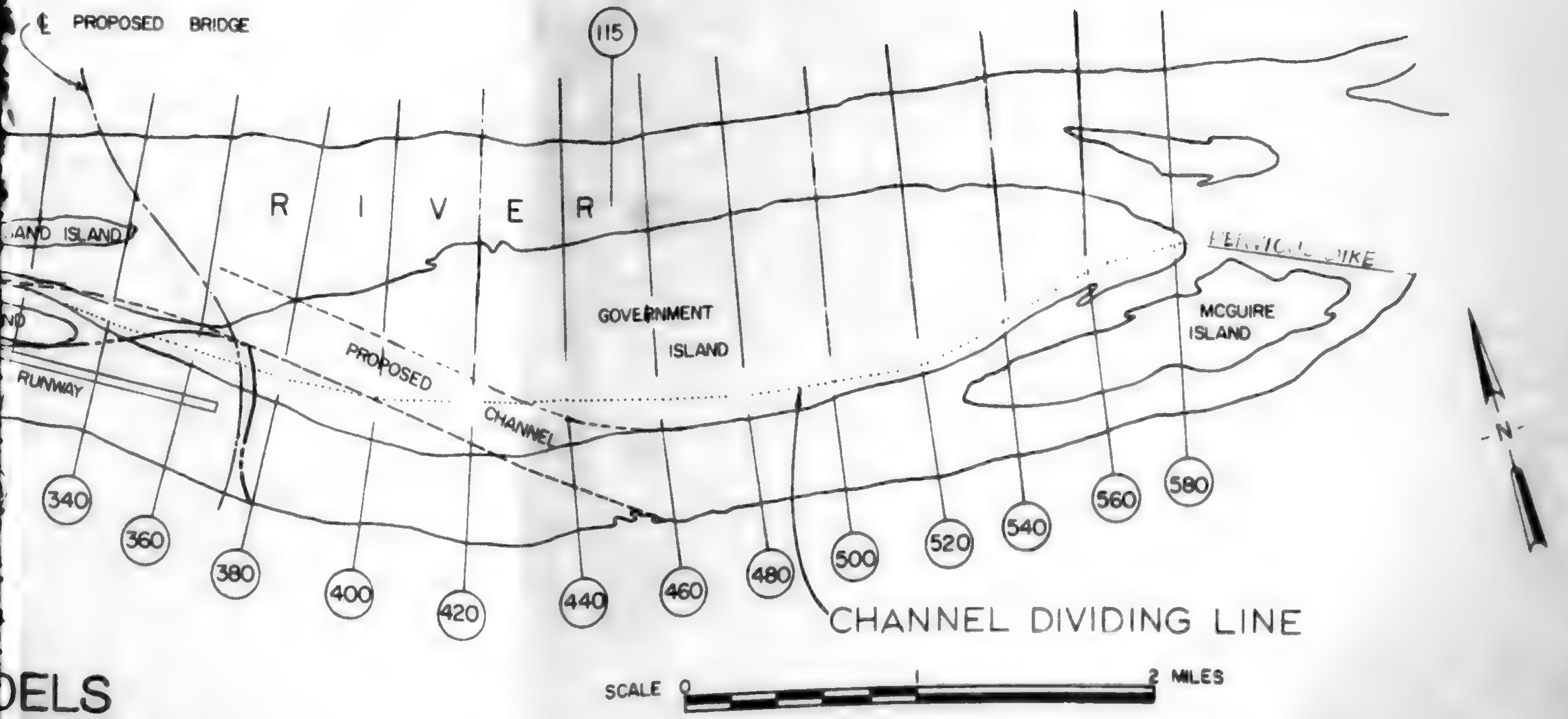
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CHANNEL DIVIDING LINE
SCALE 0 1 2 MILES

DELS

MATHEMATICAL MODELS

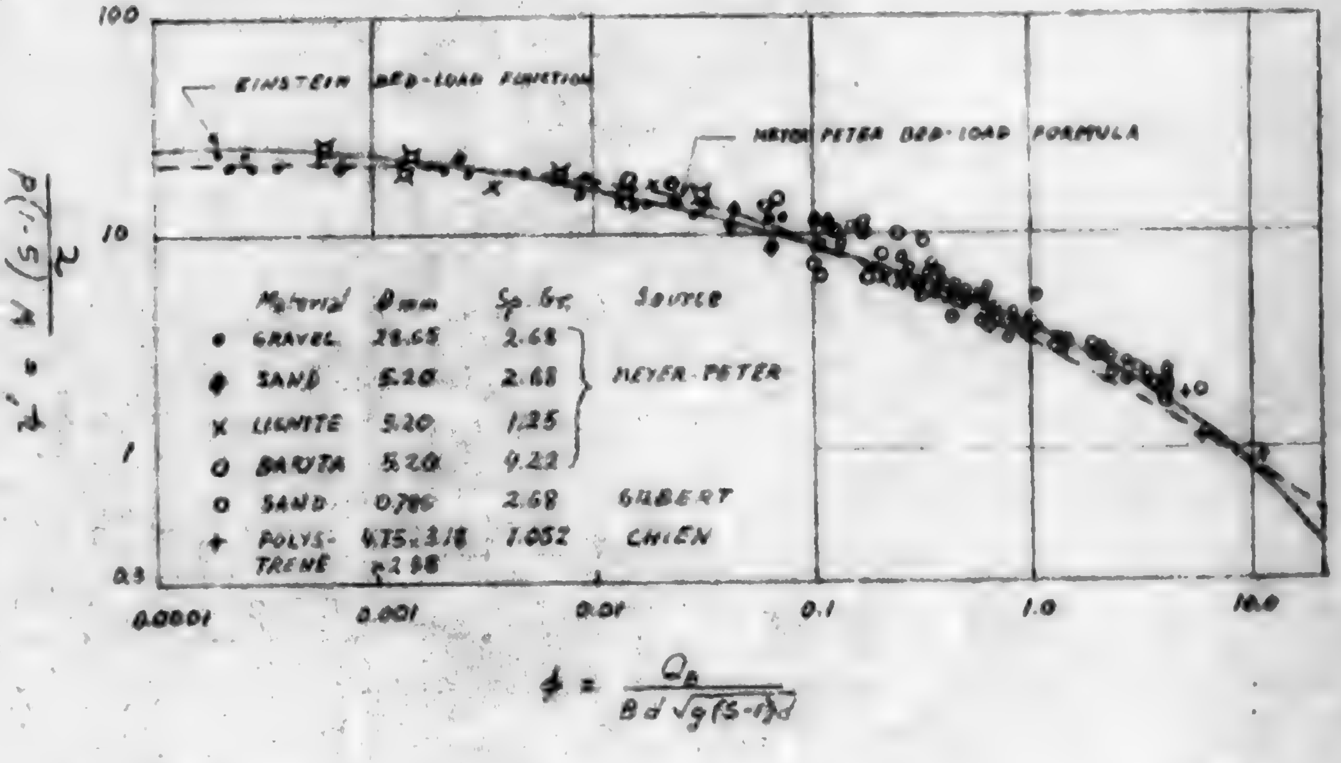
EXHIBIT B

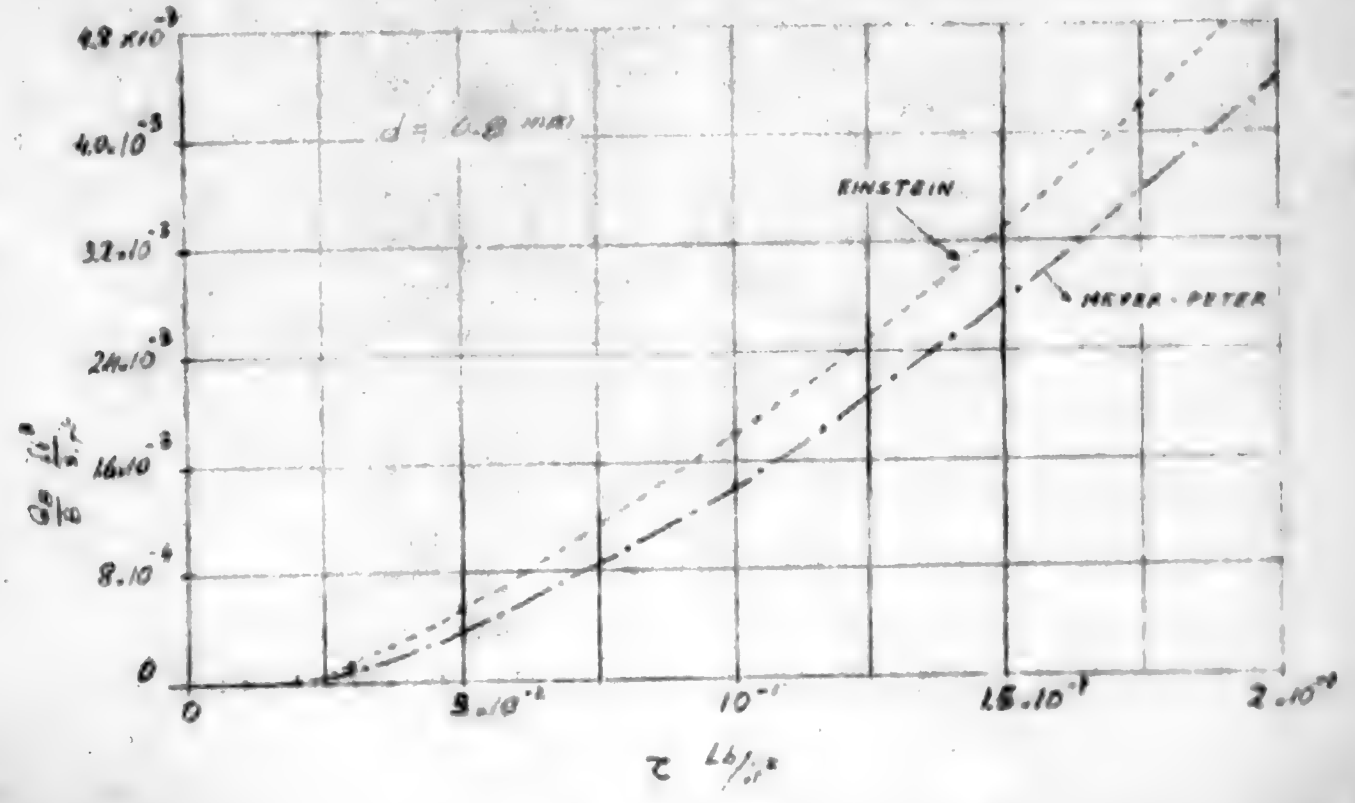
| | | |
|---|---|---|
| **BAUER ENGINEERING INC.** CHICAGO | SUBJECT BED LOAD FUNCTIONS | PROJECT PORTLAND |
| | | FILE No. 6764 |
| | COMPUTED ALBERTO VAL CHECKED | DATE 3/29/68 PAGE ___ OF ___ PAGES |

τ IS THE INTENSITY OF BED SHEAR

$Q_B/B$ IS THE RATE OF TRANSPORT IN VOLUME OF MATERIAL

$\psi'$ AND $\phi$ ARE DIMENSIONLESS



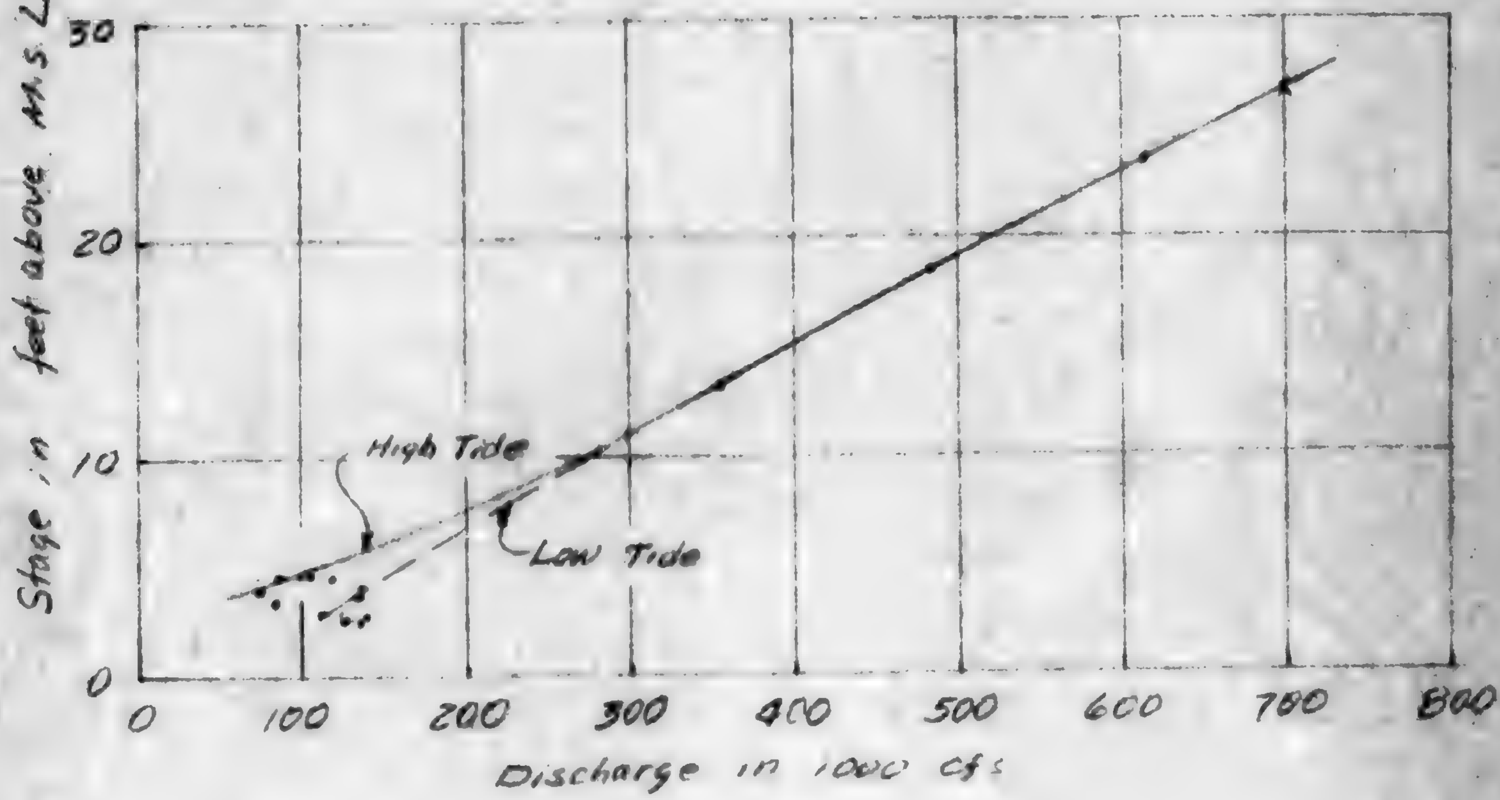


MAX. τ FOR
Q = 400,000 c/s

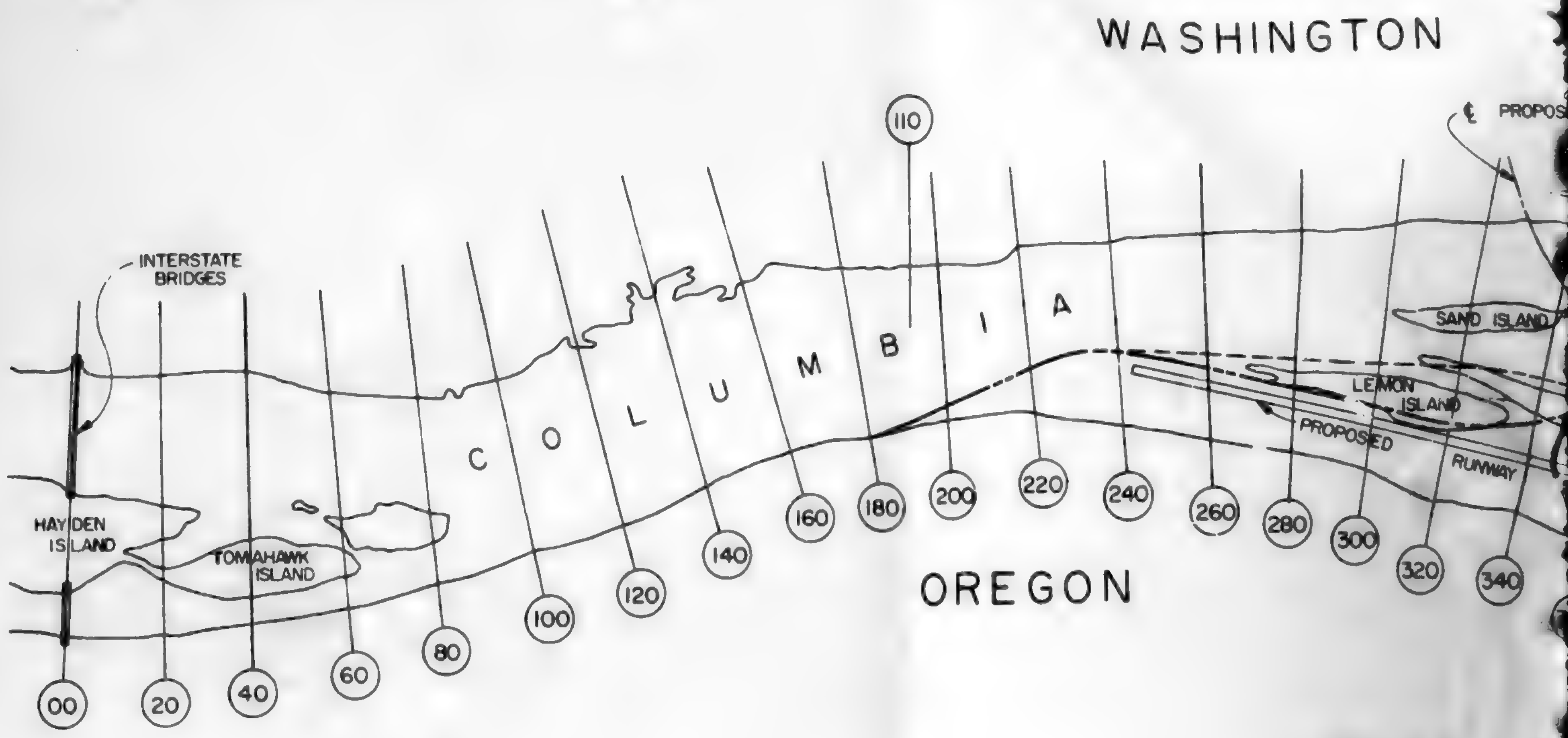
MAX. τ FOR
Q = 700,000 c/s

EXHIBIT C

| | | |
|---|---|---|
| **BAUER ENGINEERING INC.**<br>CHICAGO | SUBJECT Stage-Discharge Curve<br>COMPUTED C. Y. H. CHECKED K. H. C. | PROJECT Portland<br>FILE NO. 6764<br>DATE 2/10/68 PAGE ___ OF ___ PAGES |



| Date | Discharge (cfs) | Stage (ft) | Date | Discharge (cfs) | Stage (ft) |
|---|---|---|---|---|---|
| 6/16/64 | 615,900 | 23.70 | 9/16/64 | 127,400 | 2.50 |
| 6/17/65 | 483,400 | 18.59 | 9/16/64 | 112,500 | 2.72 |
| 7/7/65 | 354,700 | 13.08 | 9/16/64 | 81,600 | 3.20 |
| 9/16/64 | 134,800 | 3.36 | 9/16/64 | 72,800 | 3.97 |
| 9/16/64 | 137,600 | 3.08 | 9/16/64 | 86,900 | 4.38 |
| 9/16/64 | 140,400 | 2.81 | 9/16/64 | 106,000 | 4.42 |
| 9/16/64 | 136,700 | 2.56 | 9/16/64 | 122,800 | 4.21 |


WASHINGTON
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INTERSTATE BRIDGES
COLUMBIA
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LEMON ISLAND
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## PLAN

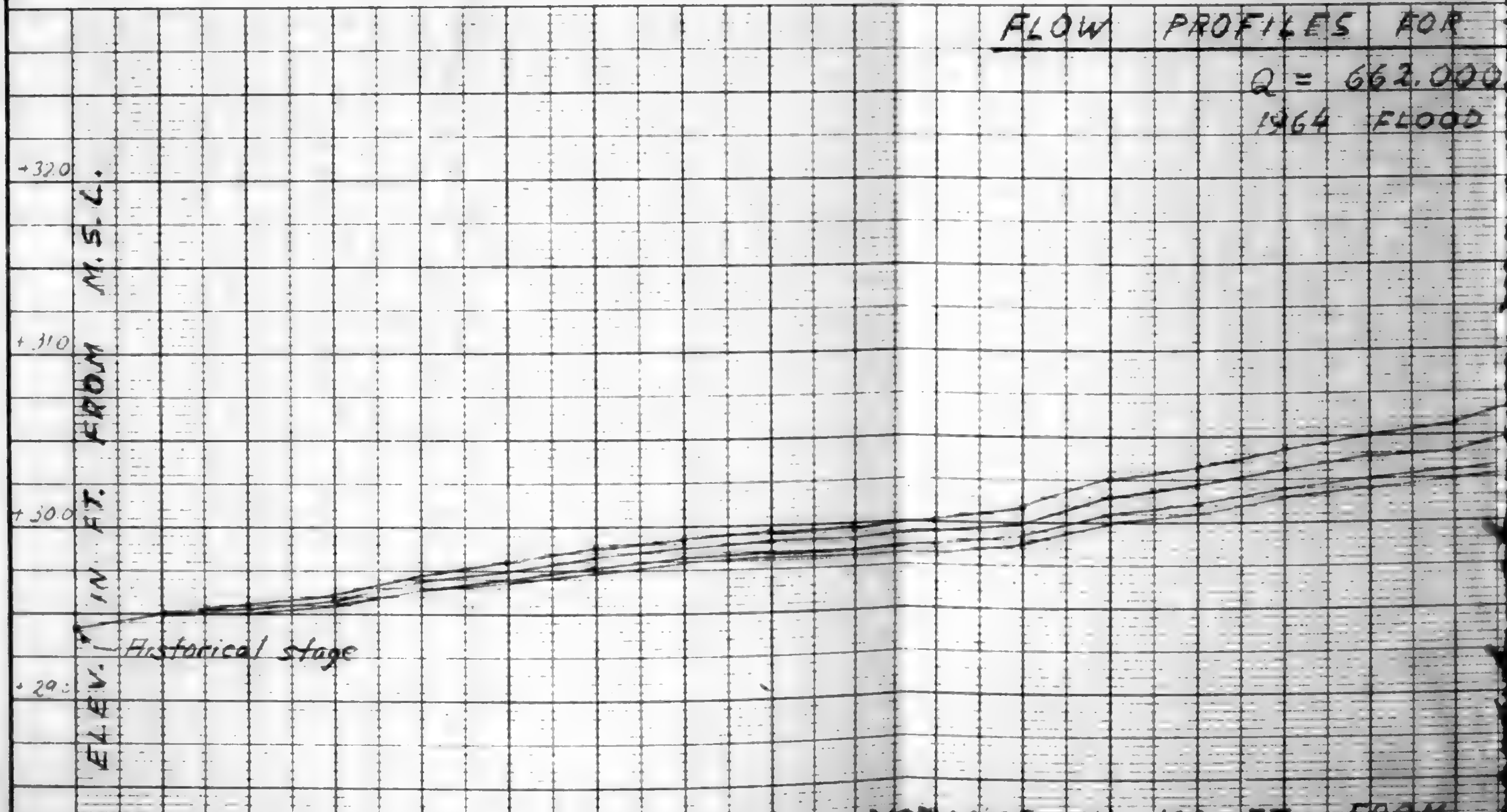
FLOW PROFILES FOR
Q = 662,000
1964 FLOOD
ELEV. IN FT. FROM M.S.L.
+32.0
+31.0
+30.0
+29.0
Historical stage
DISTANCE IN 100 FT. FROM
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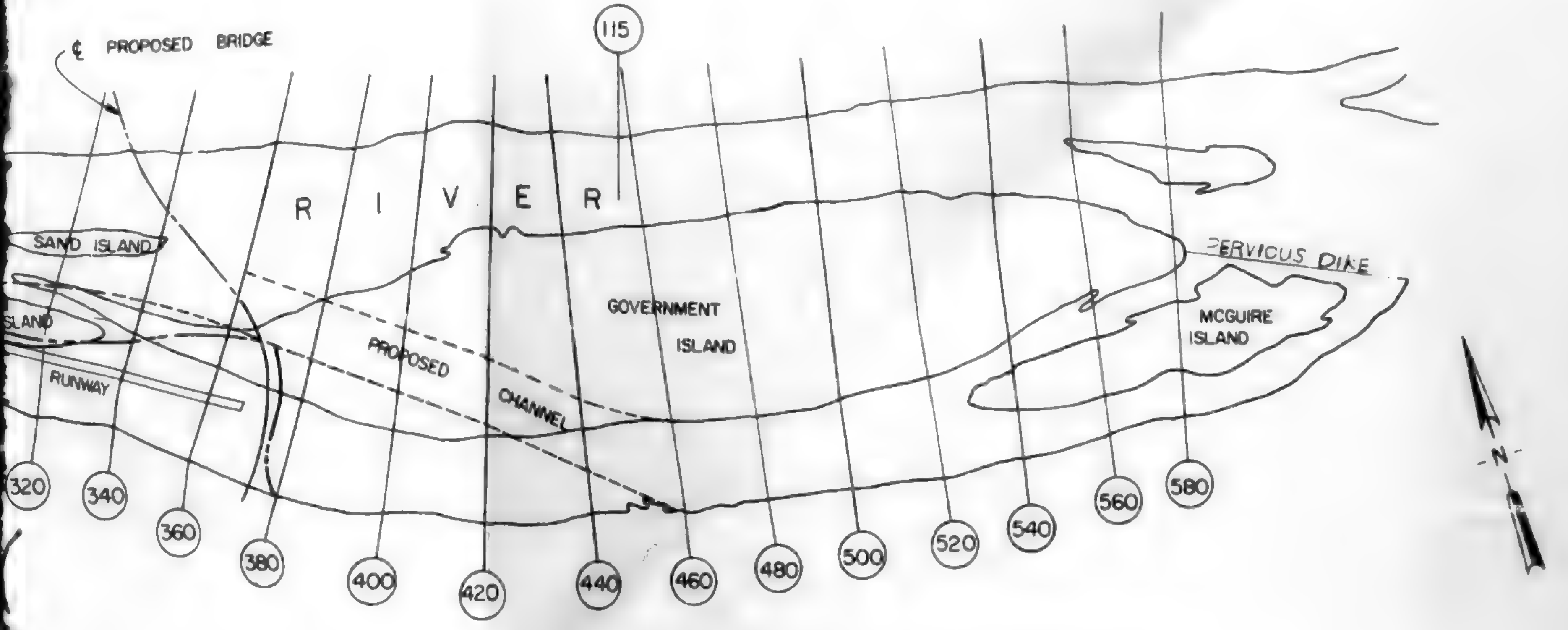
EXHIBIT D

ON



℄ PROPOSED BRIDGE
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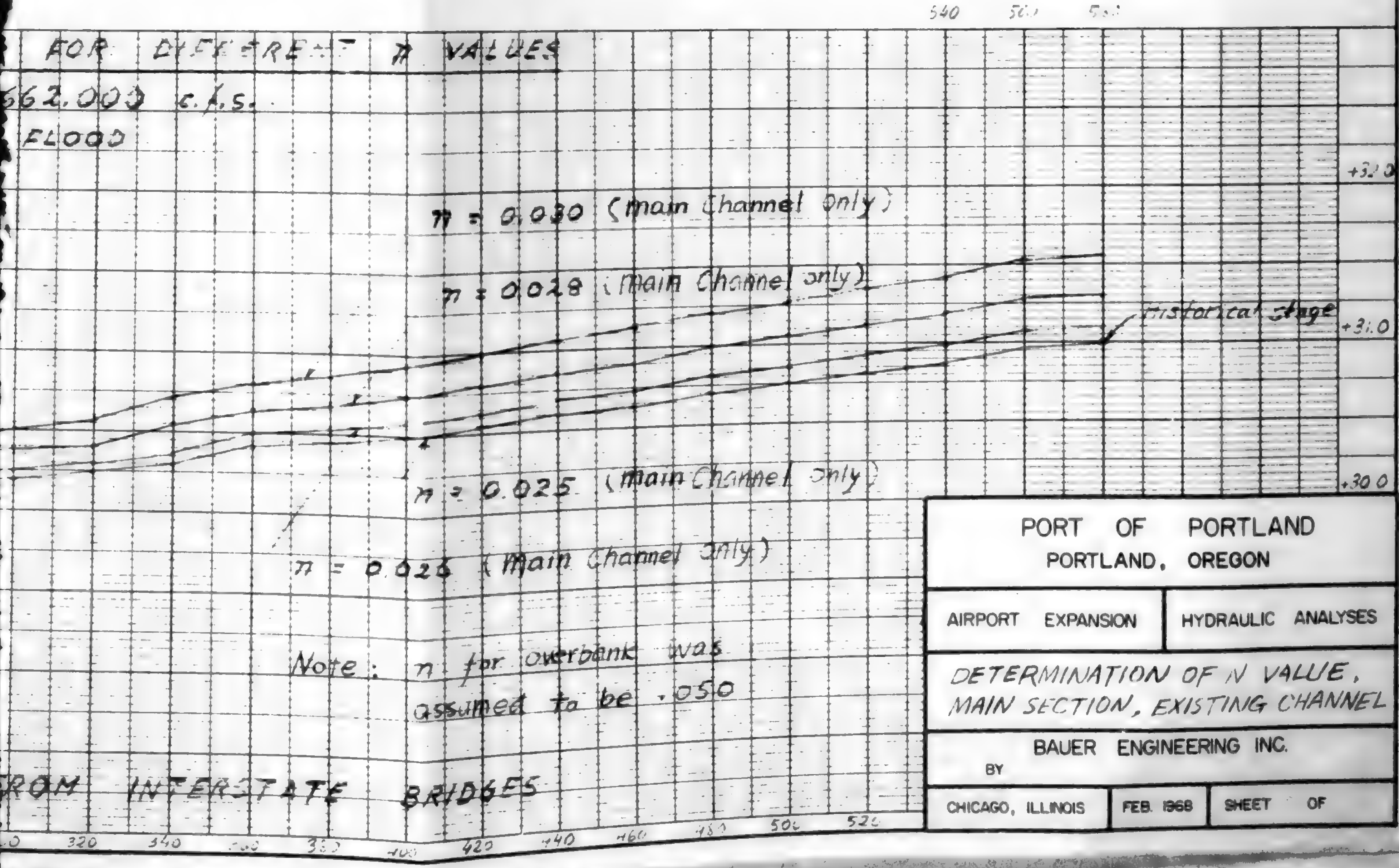


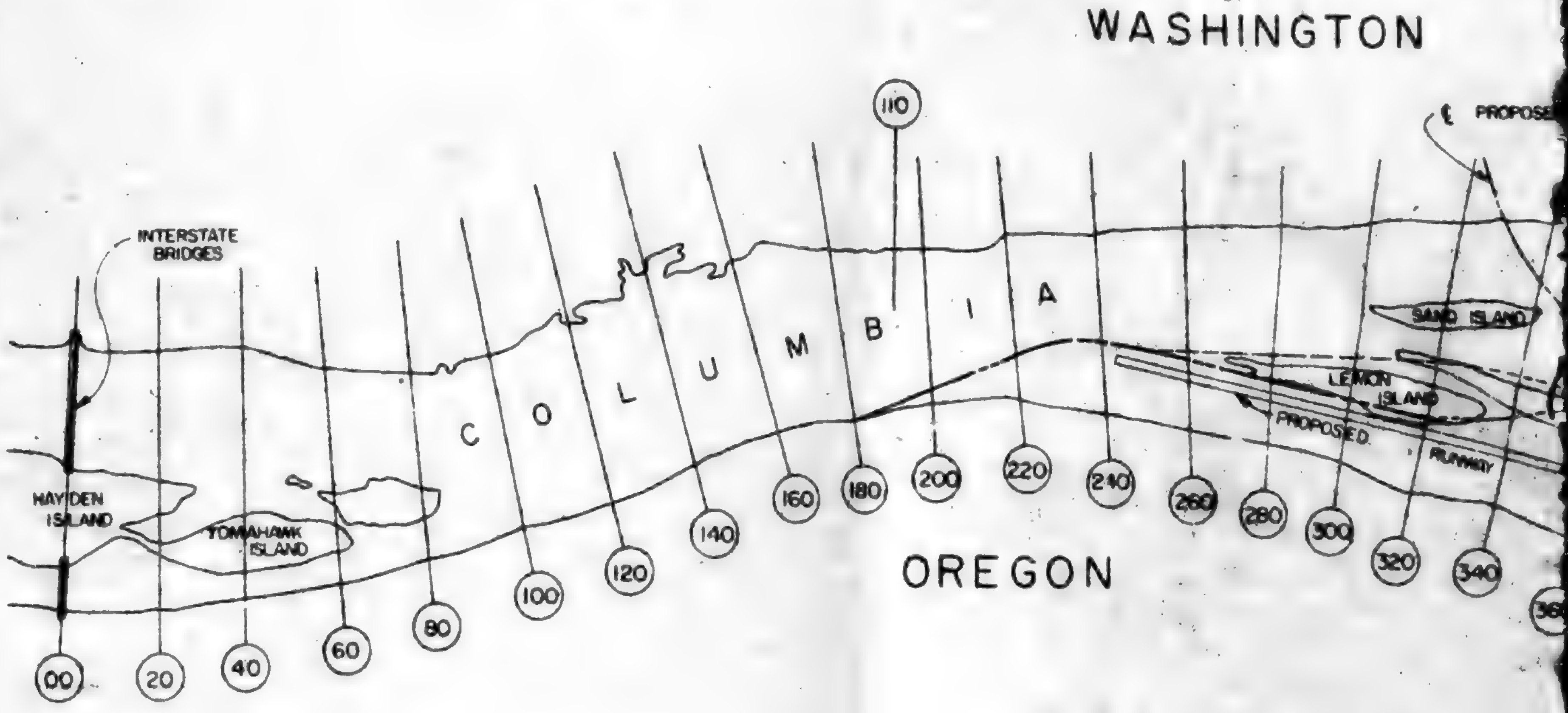
PORT OF PORTLAND
PORTLAND, OREGON

AIRPORT EXPANSION | HYDRAULIC ANALYSES

DETERMINATION OF N VALUE, MAIN SECTION, EXISTING CHANNEL

BY BAUER ENGINEERING INC.

CHICAGO, ILLINOIS | FEB. 1968 | SHEET OF


WASHINGTON
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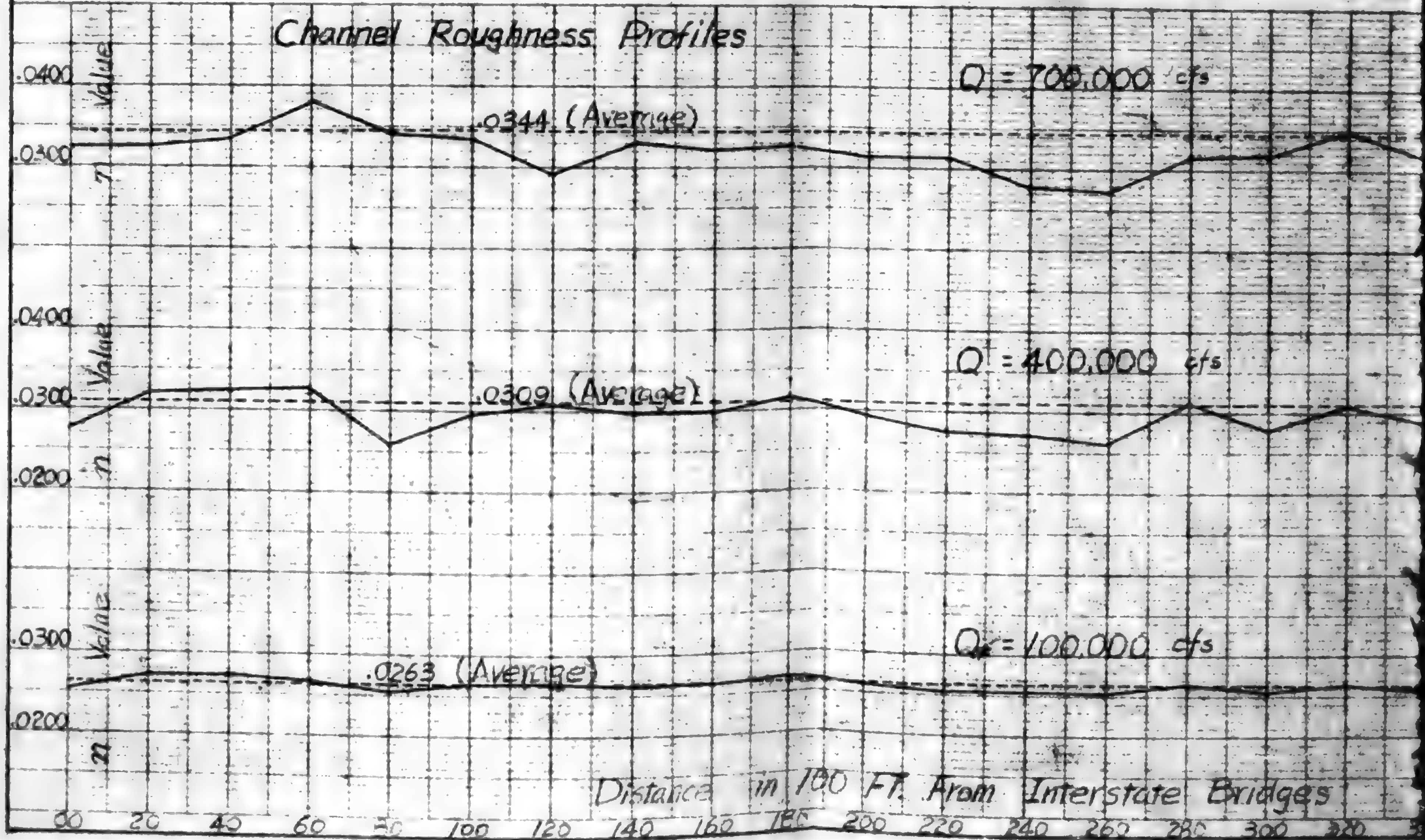
## PLAN


Channel Roughness Profiles
Q = 700,000 cfs
.0344 (Average)
n Value
.0400
.0300
Q = 400,000 cfs
.0309 (Average)
n Value
.0400
.0300
.0200
Q = 100,000 cfs
.0263 (Average)
n Value
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.0200
Distance in 100 FT. From Interstate Bridges
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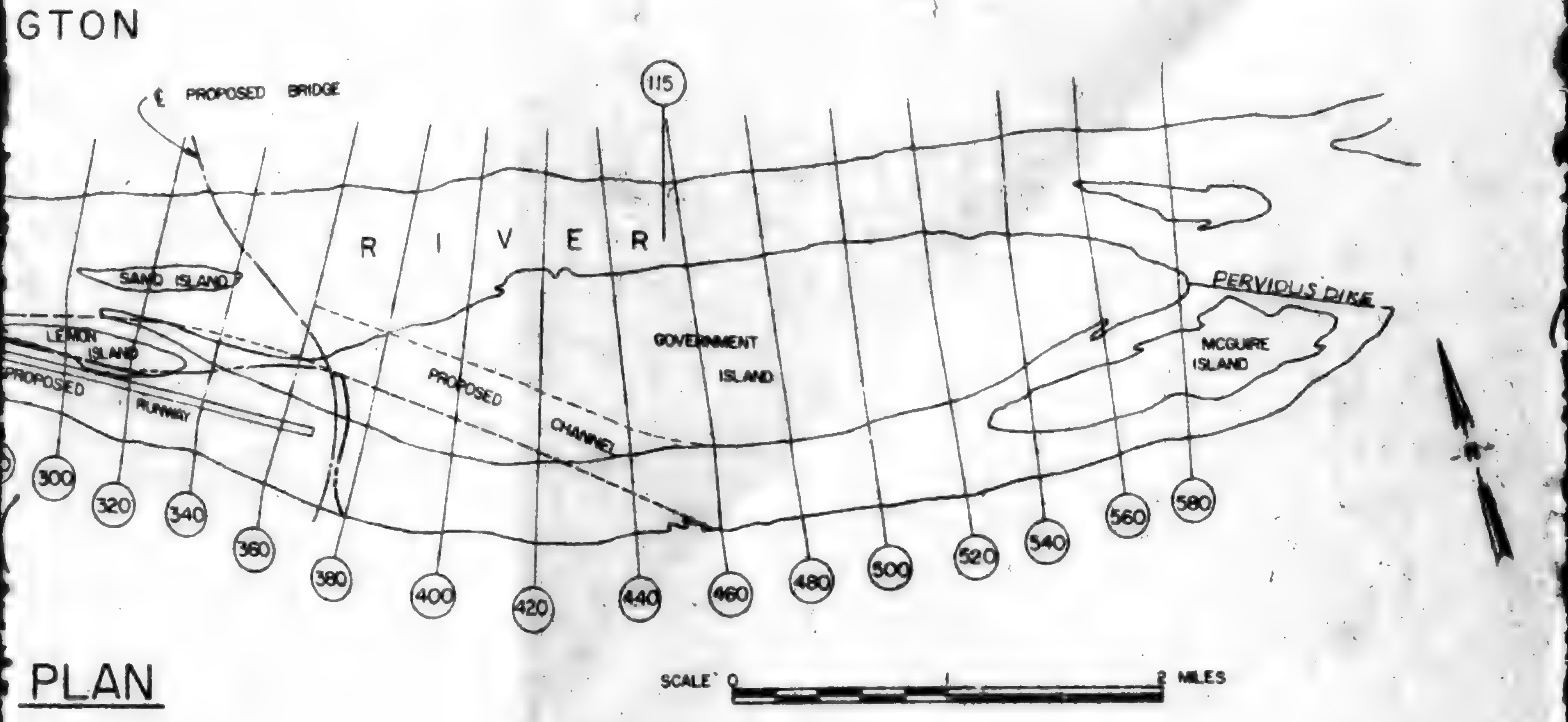
EXHIBIT E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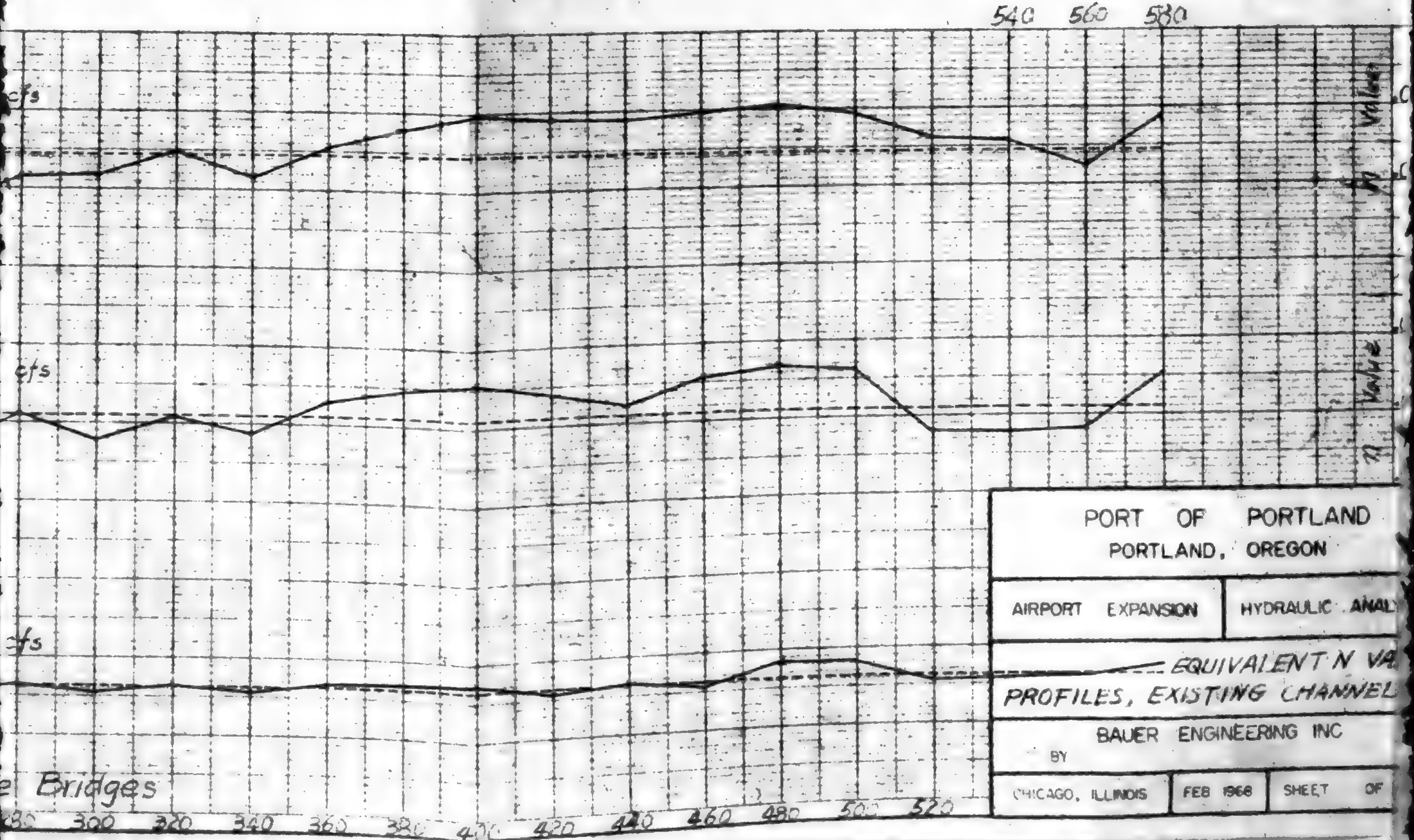

PORT OF PORTLAND
PORTLAND, OREGON

AIRPORT EXPANSION
HYDRAULIC ANALY

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PROFILES, EXISTING CHANNEL

BY BAUER ENGINEERING INC

CHICAGO, ILLINOIS
FEB 1968
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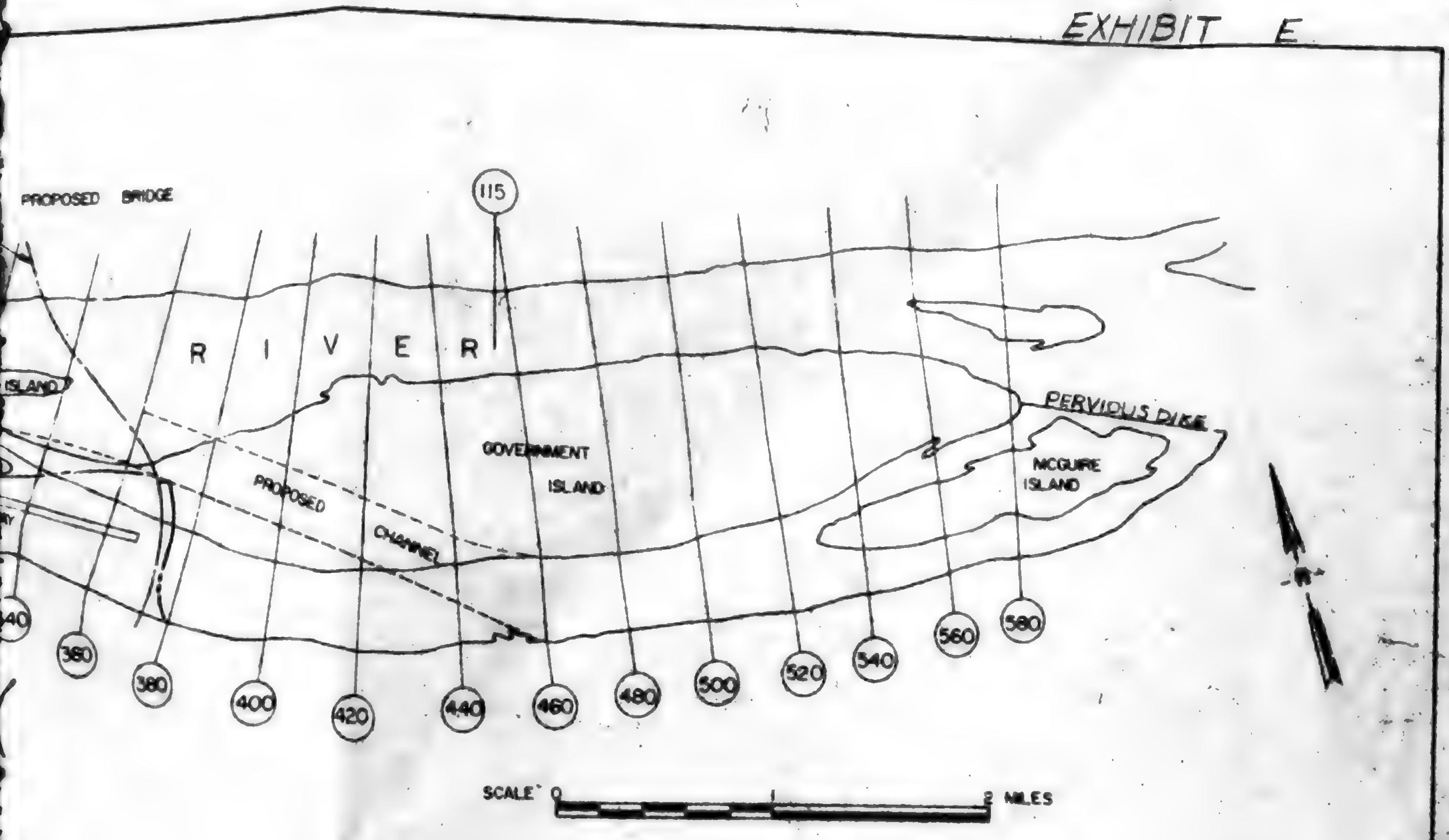
EXHIBIT E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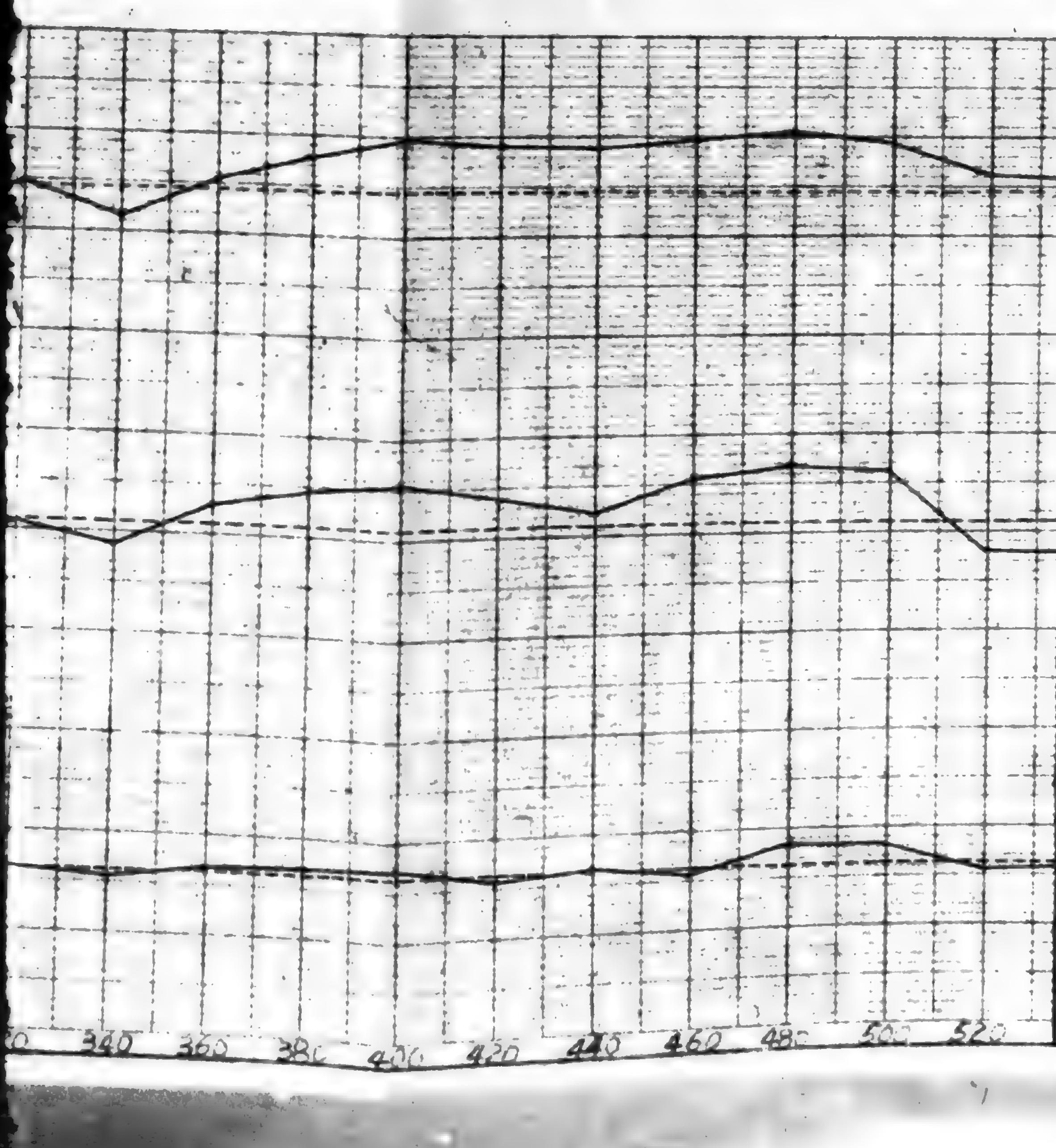


PORT OF PORTLAND
PORTLAND, OREGON

AIRPORT EXPANSION
HYDRAULIC ANALYSES

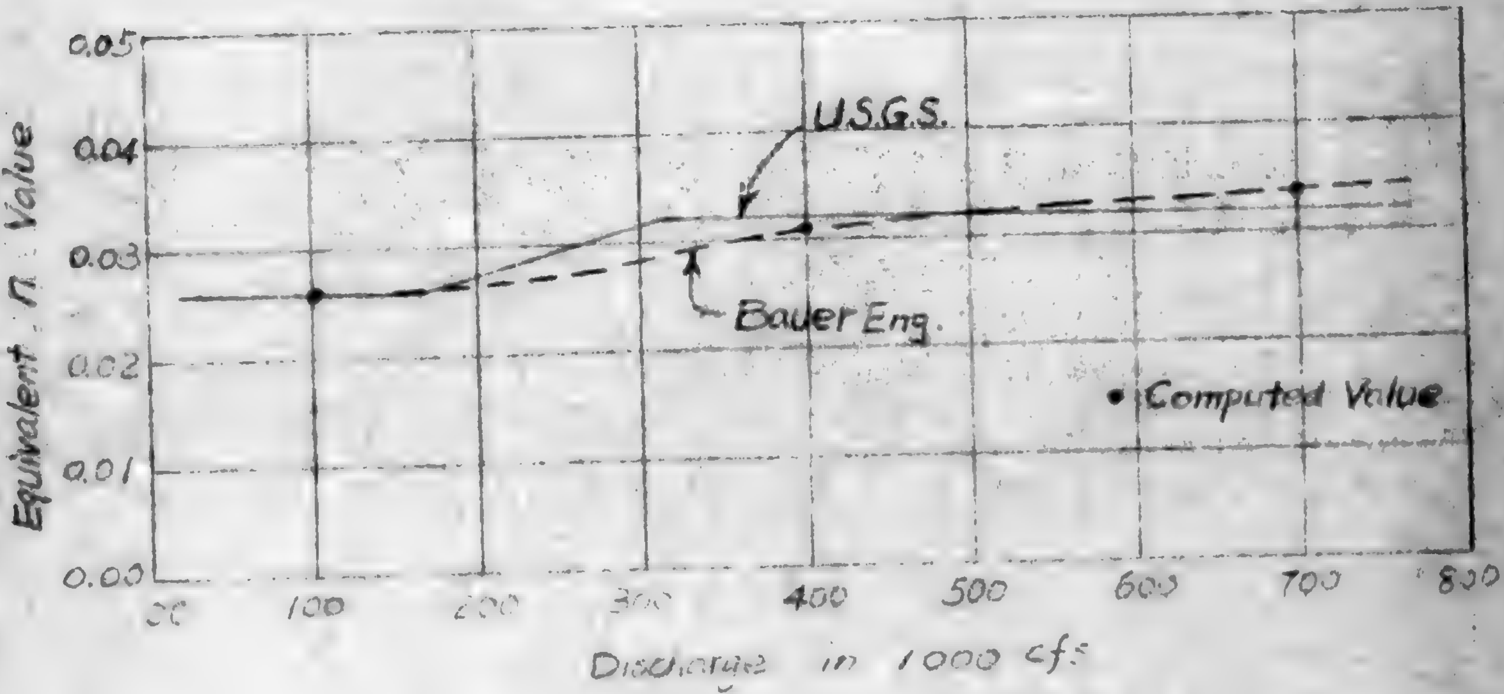
EQUIVALENT N VALUE PROFILES, EXISTING CHANNEL

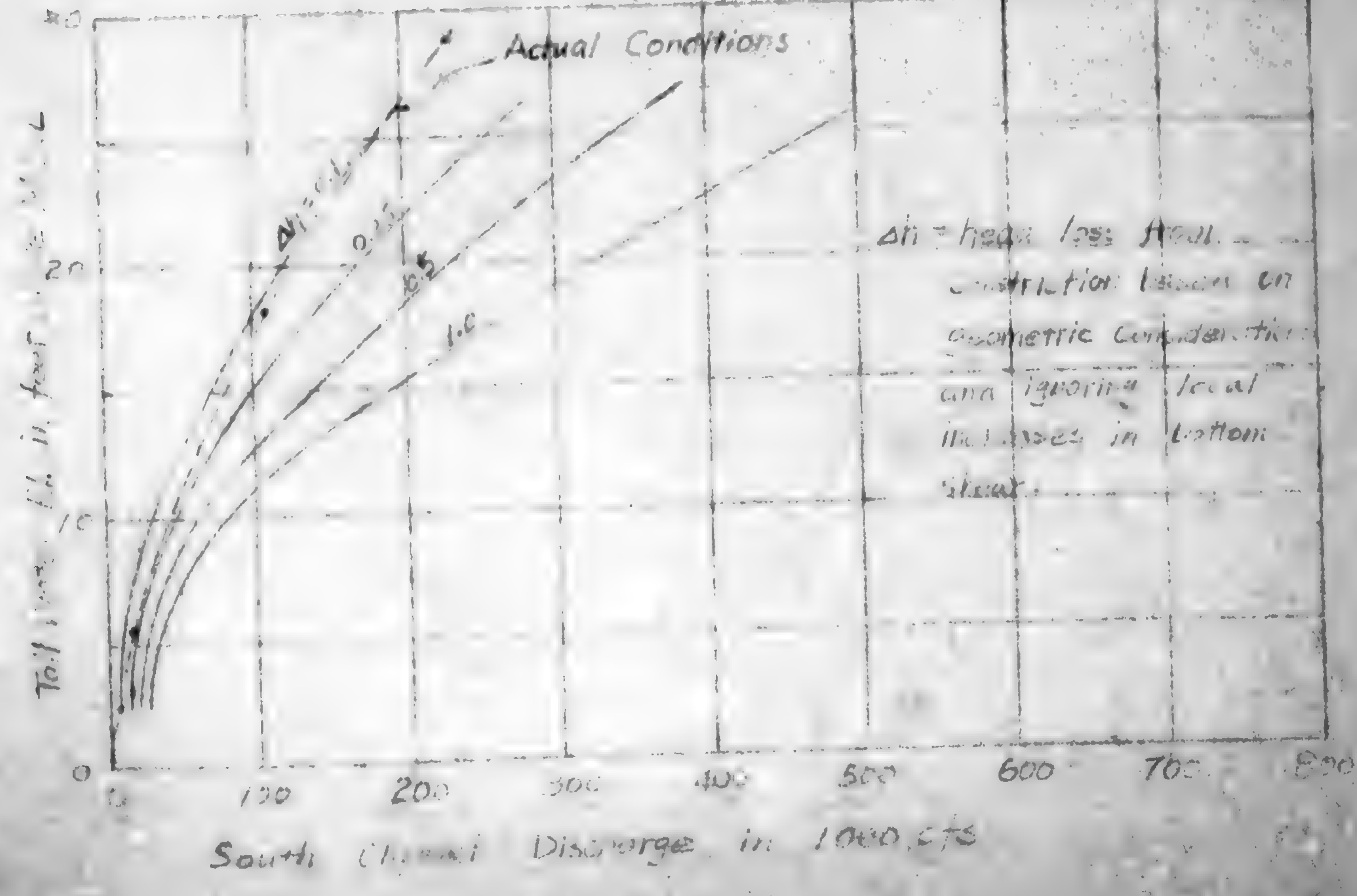
BAUER ENGINEERING INC
BY

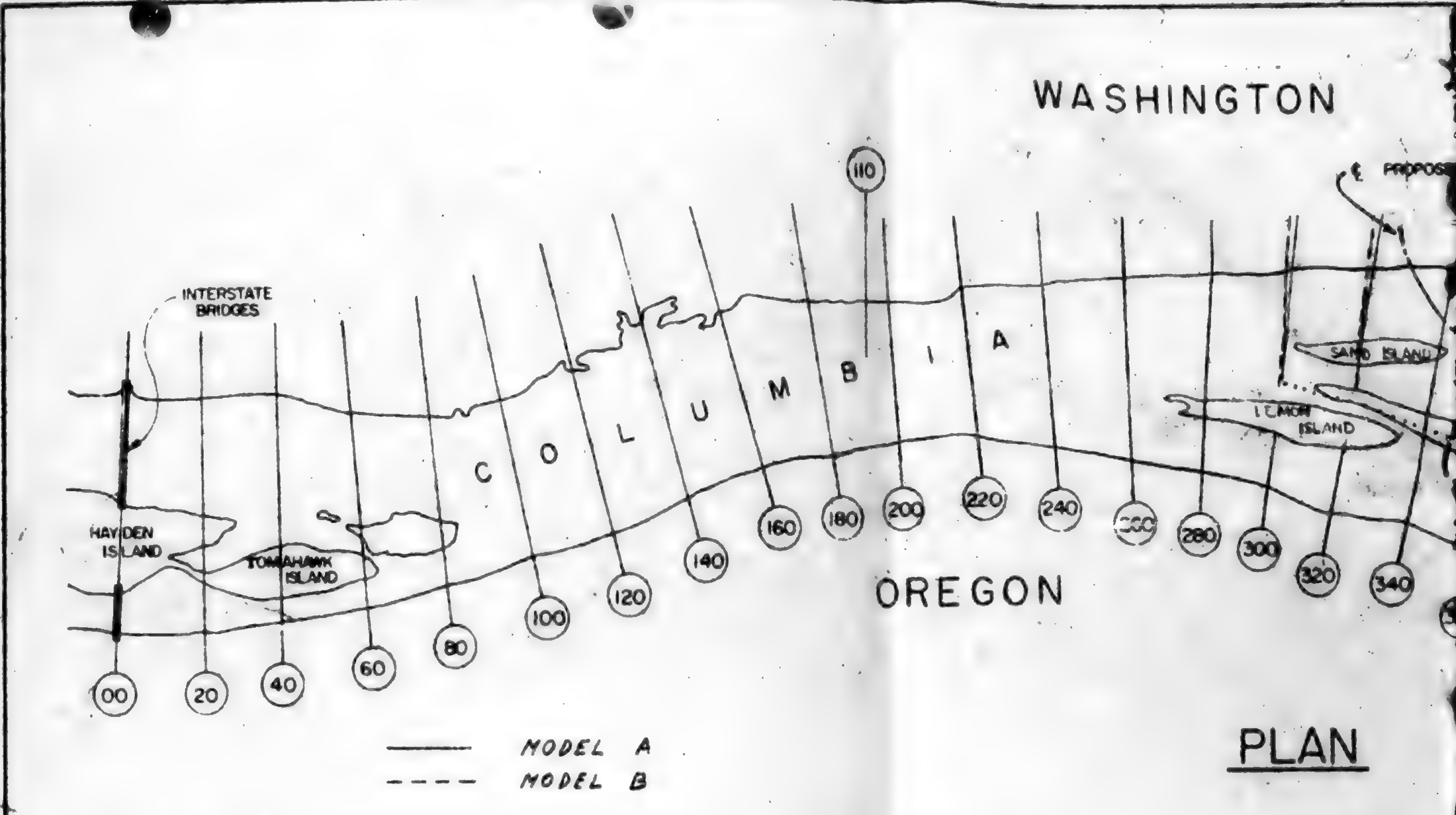
CHICAGO, ILLINOIS
FEB 1968
SHEET OF

EXHIBIT F (Upper)
G (Lower)

| | | |
|---|---|---|
| **BAUER ENGINEERING INC.**<br>CHICAGO | SUBJECT 1. Coefficient of Roughness<br>2. Losses through Pervious Dike | PROJECT Portland |
| | | FILE NO. 6764 |
| | COMPUTED C. Y. H. CHECKED K. H. C. | DATE 2/10/68 PAGE ___ OF ___ PAGES |



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MODEL A
MODEL B
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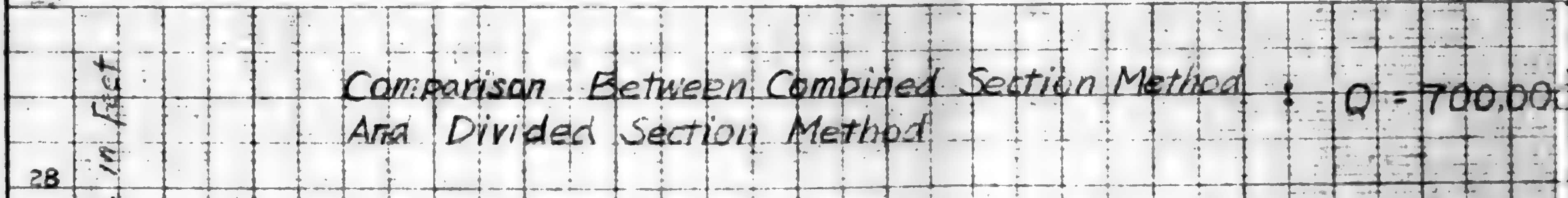
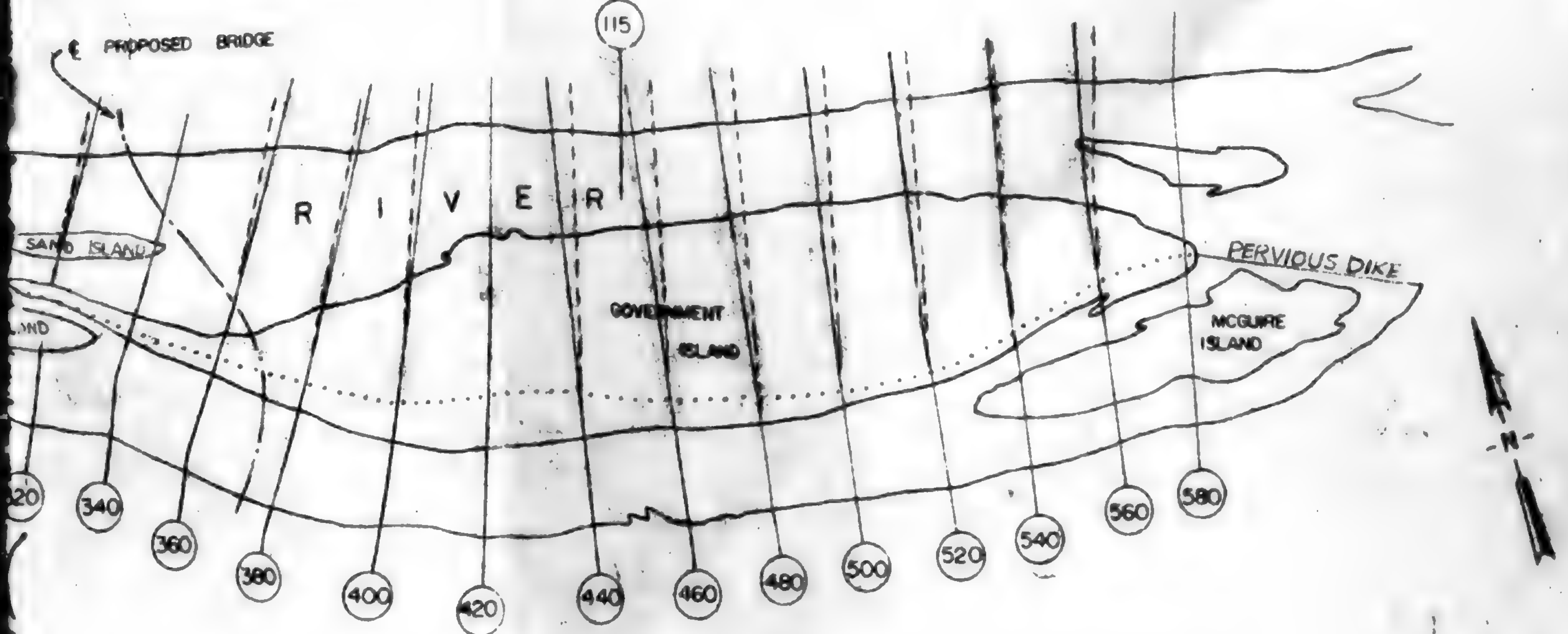

Comparison Between Combined Section Method And Divided Section Method : Q = 700,00

EXHIBIT H

N



℄ PROPOSED BRIDGE
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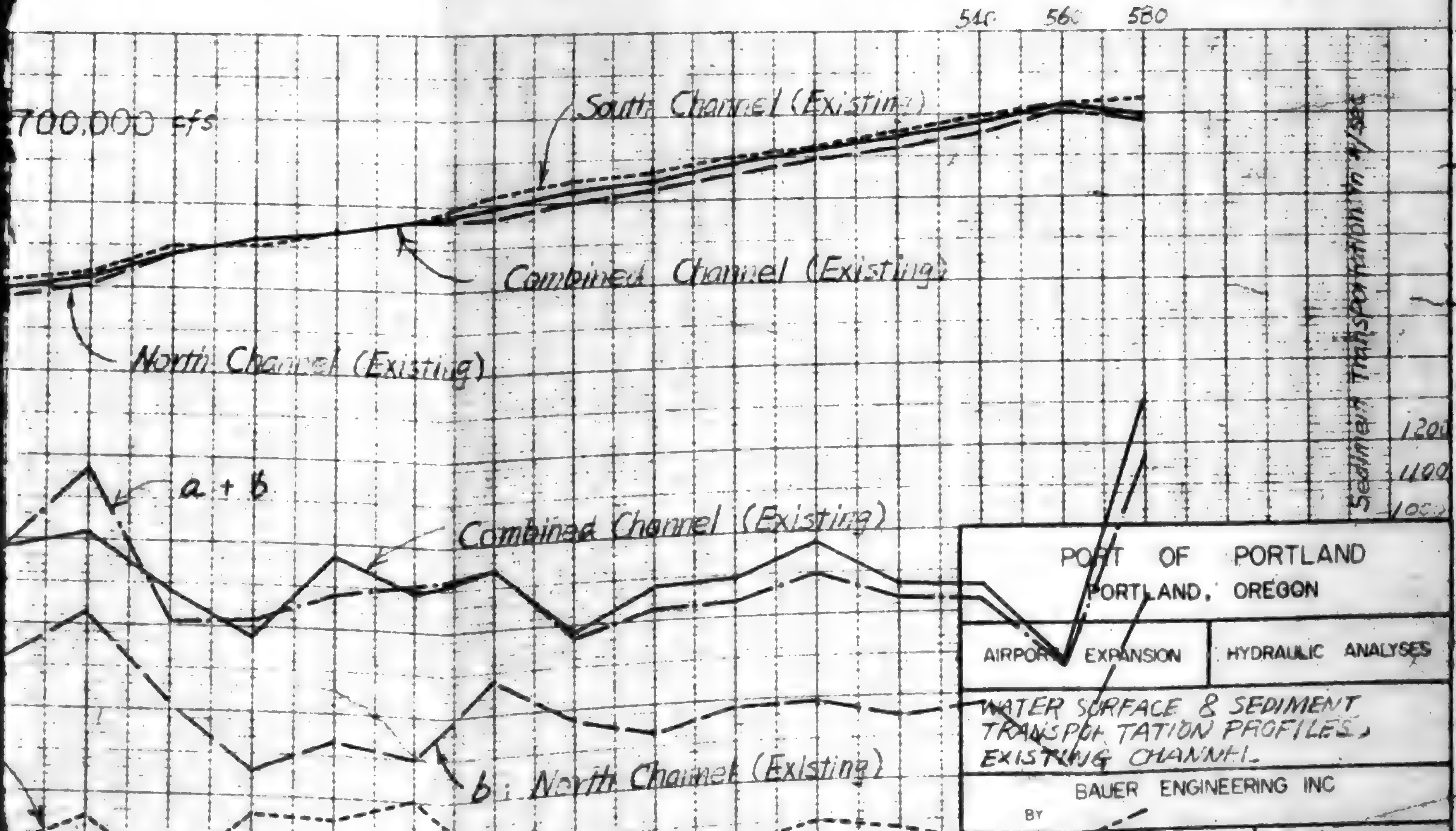
AN

SCALE 0 1 2 MILES



PORT OF PORTLAND
PORTLAND, OREGON

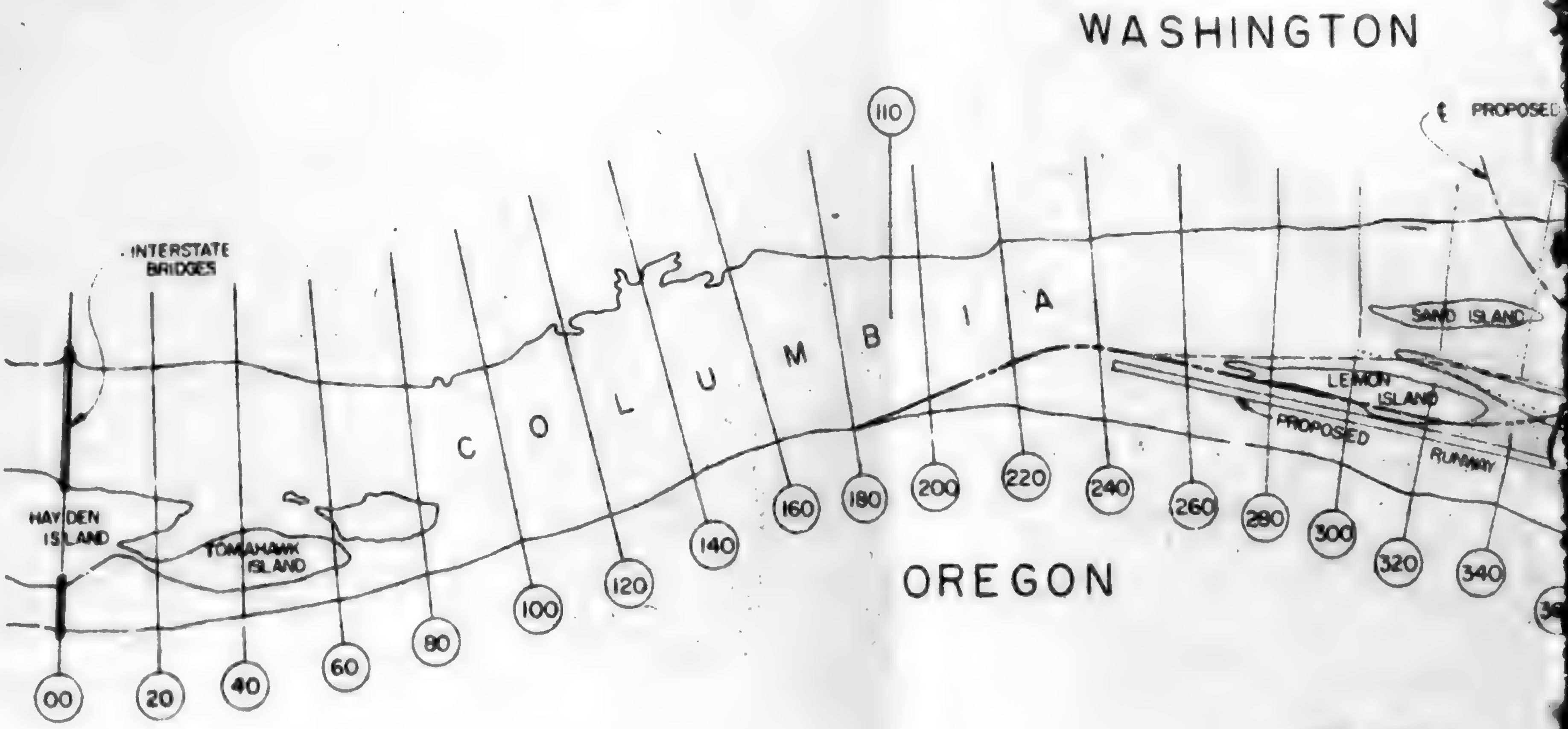
AIRPORT EXPANSION | HYDRAULIC ANALYSES

WATER SURFACE & SEDIMENT TRANSPORTATION PROFILES, EXISTING CHANNEL

BAUER ENGINEERING INC

BY

INC | FEB 1968 | SHEET OF


WASHINGTON
PROPOSED
INTERSTATE BRIDGES
COLUMBIA
SAND ISLAND
LEMON ISLAND
PROPOSED
RUNWAY
HAYDEN ISLAND
TOMAHAWK ISLAND
OREGON
00
20
40
60
80
100
110
120
140
160
180
200
220
240
260
280
300
320
340

## PLAN

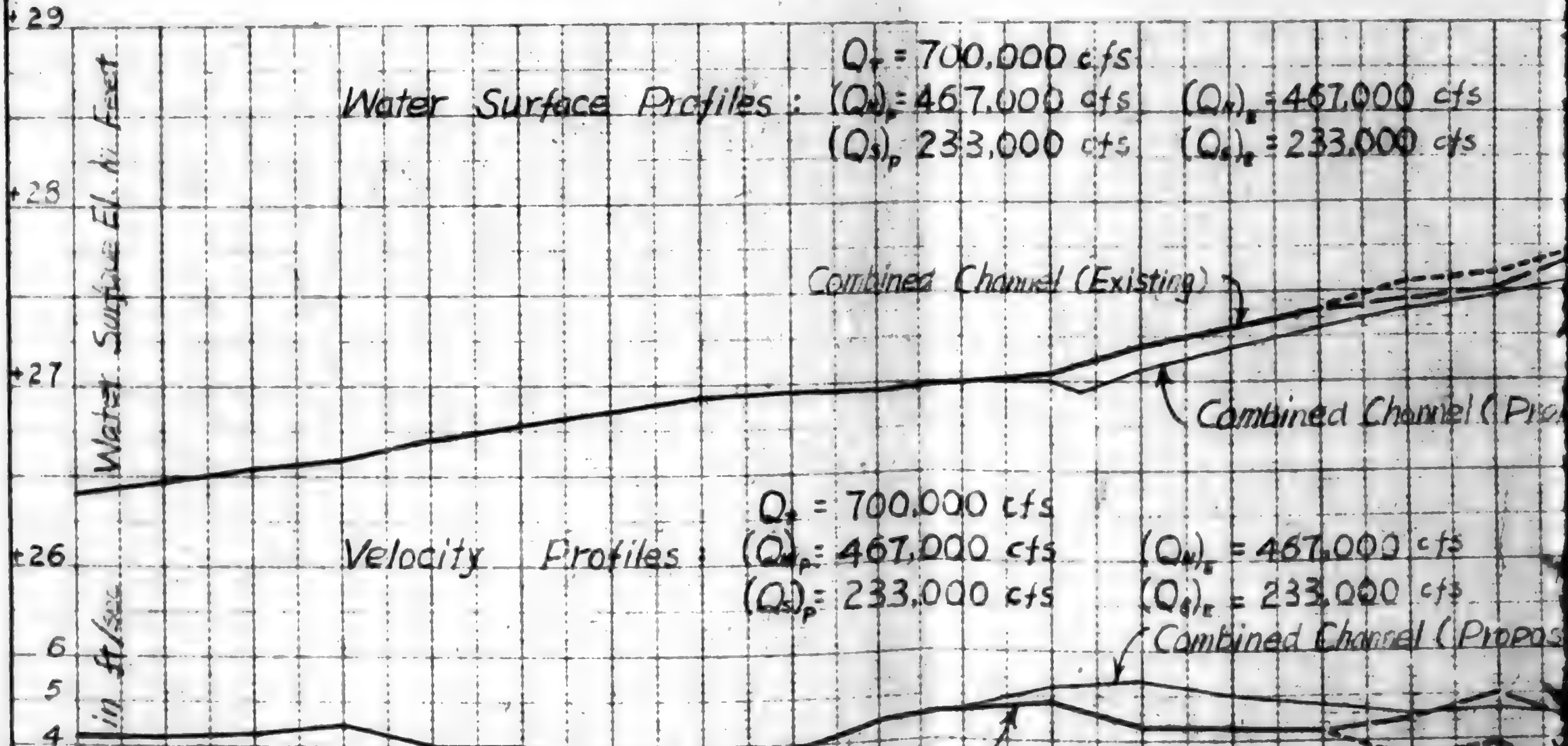
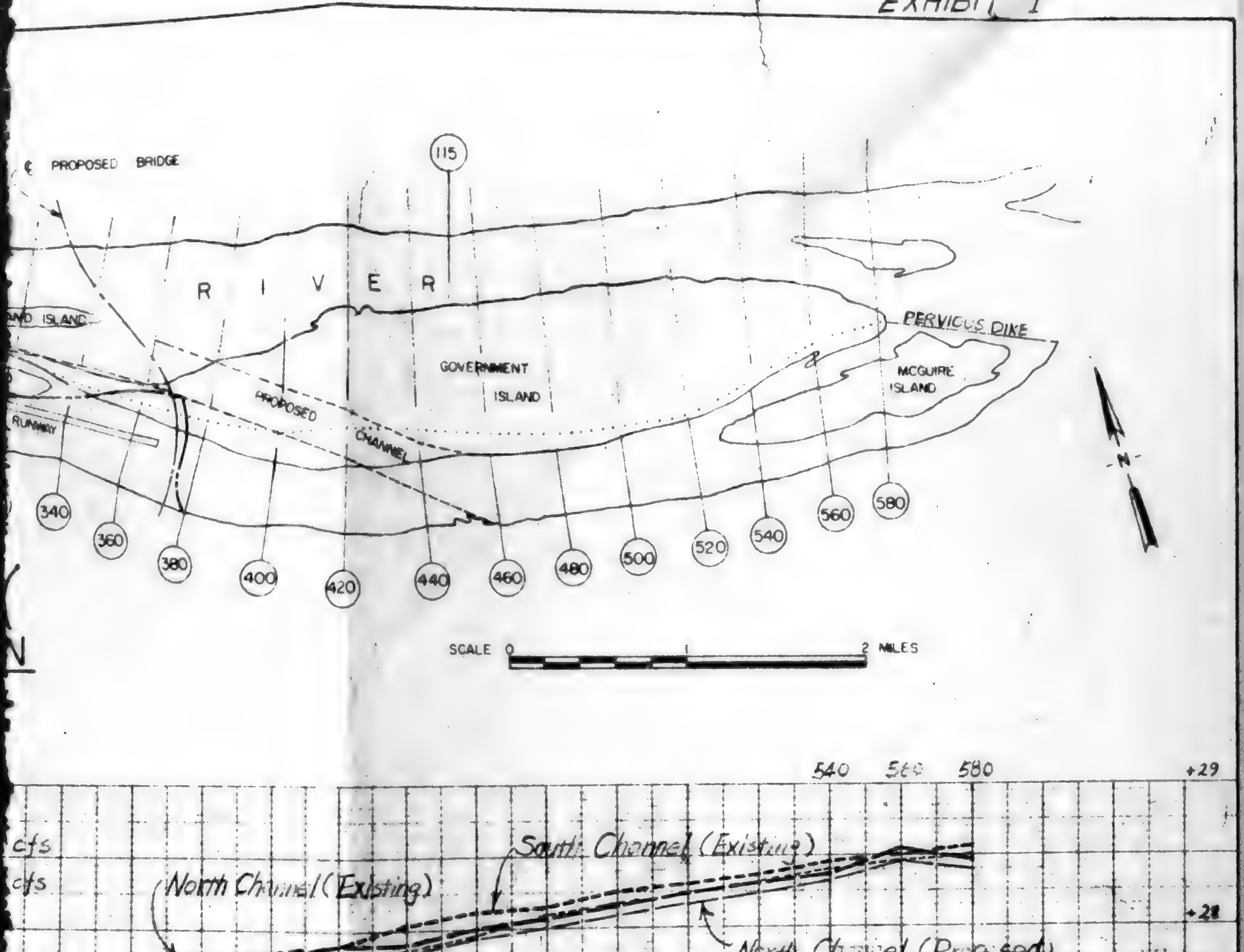

+29
+28
+27
+26
Water Surface El. in Feet
Water Surface Profiles :
$Q_T$ = 700,000 cfs
$(Q_N)_P$ = 467,000 cfs
$(Q_S)_P$ 233,000 cfs
$(Q_N)_E$ = 467,000 cfs
$(Q_S)_E$ = 233,000 cfs
Combined Channel (Existing)
Combined Channel (Pro
Velocity Profiles :
$Q_T$ = 700,000 cfs
$(Q_N)_P$ = 467,000 cfs
$(Q_S)_P$ = 233,000 cfs
$(Q_N)_E$ = 467,000 cfs
$(Q_S)_E$ = 233,000 cfs
Combined Channel (Propos
Combined Channel (Existing)
6
5
4
3
Velocity in ft./sec.
Distance in 100 FT. From Interstate Bridges
00
20
40
60
80
100
120
140
160
180
200
220
240
260
280
300
320

EXHIBIT I


℄ PROPOSED BRIDGE
115
R I V E R
ND ISLAND
PERVIOUS DIKE
GOVERNMENT ISLAND
MCGUIRE ISLAND
PROPOSED CHANNEL
RUNWAY
N
340
360
380
400
420
440
460
480
500
520
540
560
580
SCALE 0 1 2 MILES
N
540 560 580
+29
+28
cfs
cfs
South Channel (Existing)
North Channel (Existing)
North Channel (Proposed)
South Channel (Proposed)
nel (Proposed)
Velocity in ft/sec
5
4
3
fs
fs
(Proposed)
North Channel (Existing)
North Channel (Proposed)
South Channel (Propo
South Channel (Existing)
320 340 360 380 400 420 440 460 480 500 520

PORT OF PORTLAND
PORTLAND, OREGON

| AIRPORT EXPANSION | HYDRAULIC ANALYSES |
|---|---|

WATER SURFACE & VELOCITY
PROFILES, ALTERNATIVE 1

BAUER ENGINEERING INC.
BY

| CHICAGO, ILLINOIS | FEB 1968 | SHEET OF |
|---|---|---|

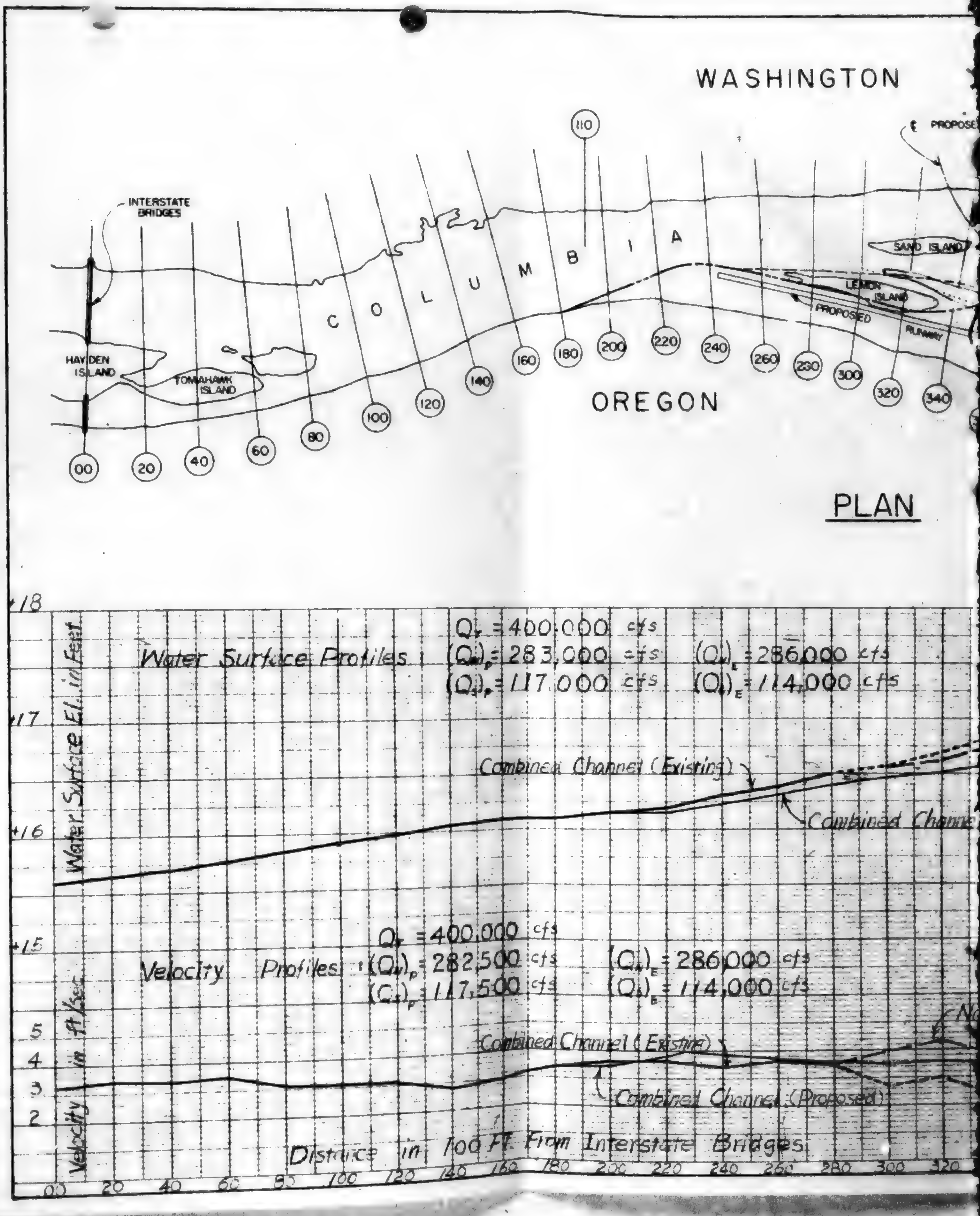
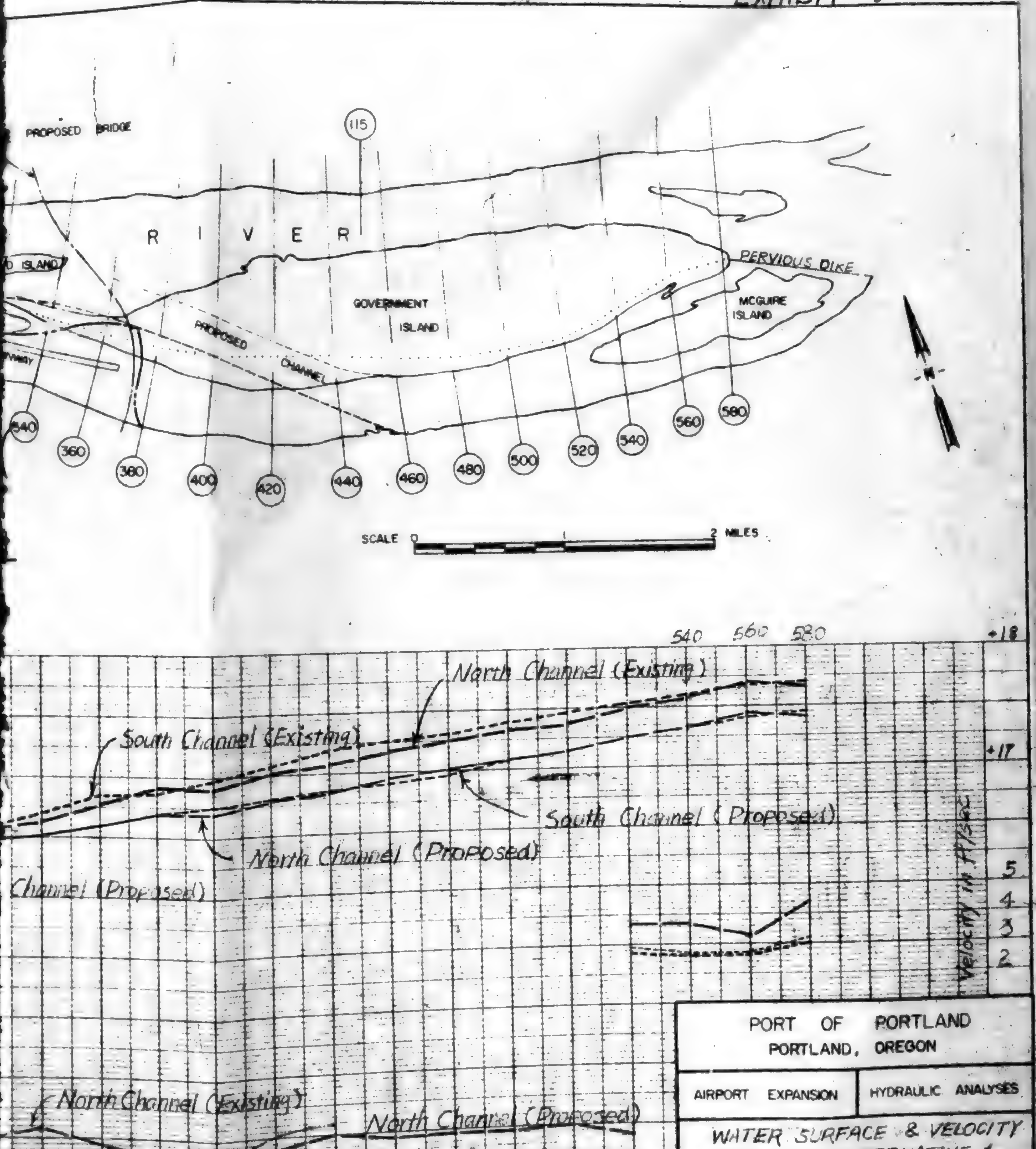

WASHINGTON
OREGON
C O L U M B I A
INTERSTATE BRIDGES
HAYDEN ISLAND
TOMAHAWK ISLAND
SAND ISLAND
LEMON ISLAND
PROPOSED
RUNWAY
℄ PROPOSE
00
20
40
60
80
100
110
120
140
160
180
200
220
240
260
280
300
320
340
PLAN
Water Surface Profiles
Q_T = 400,000 cfs
(Q_L)_P = 283,000 cfs
(Q_L)_E = 286,000 cfs
(Q_L)_P = 117,000 cfs
(Q_L)_E = 114,000 cfs
Combined Channel (Existing)
Combined Channe
Water Surface El. in Feet
+18
+17
+16
+15
Velocity Profiles
Q_T = 400,000 cfs
(Q_L)_P = 282,500 cfs
(Q_L)_E = 286,000 cfs
(Q_L)_P = 117,500 cfs
(Q_L)_E = 114,000 cfs
Combined Channel (Existing)
Combined Channel (Proposed)
No
Velocity in Ft/Sec
5
4
3
2
Distance in 100 Ft. From Interstate Bridges
00
20
40
60
80
100
120
140
160
180
200
220
240
260
280
300
320

EXHIBIT J


PROPOSED BRIDGE
115
R I V E R
ISLAND
GOVERNMENT ISLAND
PROPOSED CHANNEL
PERVIOUS DIKE
MCGUIRE ISLAND
340
360
380
400
420
440
460
480
500
520
540
560
580
SCALE 0 1 2 MILES
540 560 580
+18
+17
North Channel (Existing)
South Channel (Existing)
South Channel (Proposed)
North Channel (Proposed)
Channel (Proposed)
5
4
3
2
Velocity in Ft/Sec
North Channel (Existing)
North Channel (Proposed)
South Channel (Existing)
South Channel (Proposed)
320 340 360 380 400 420 440 460 480 500 520

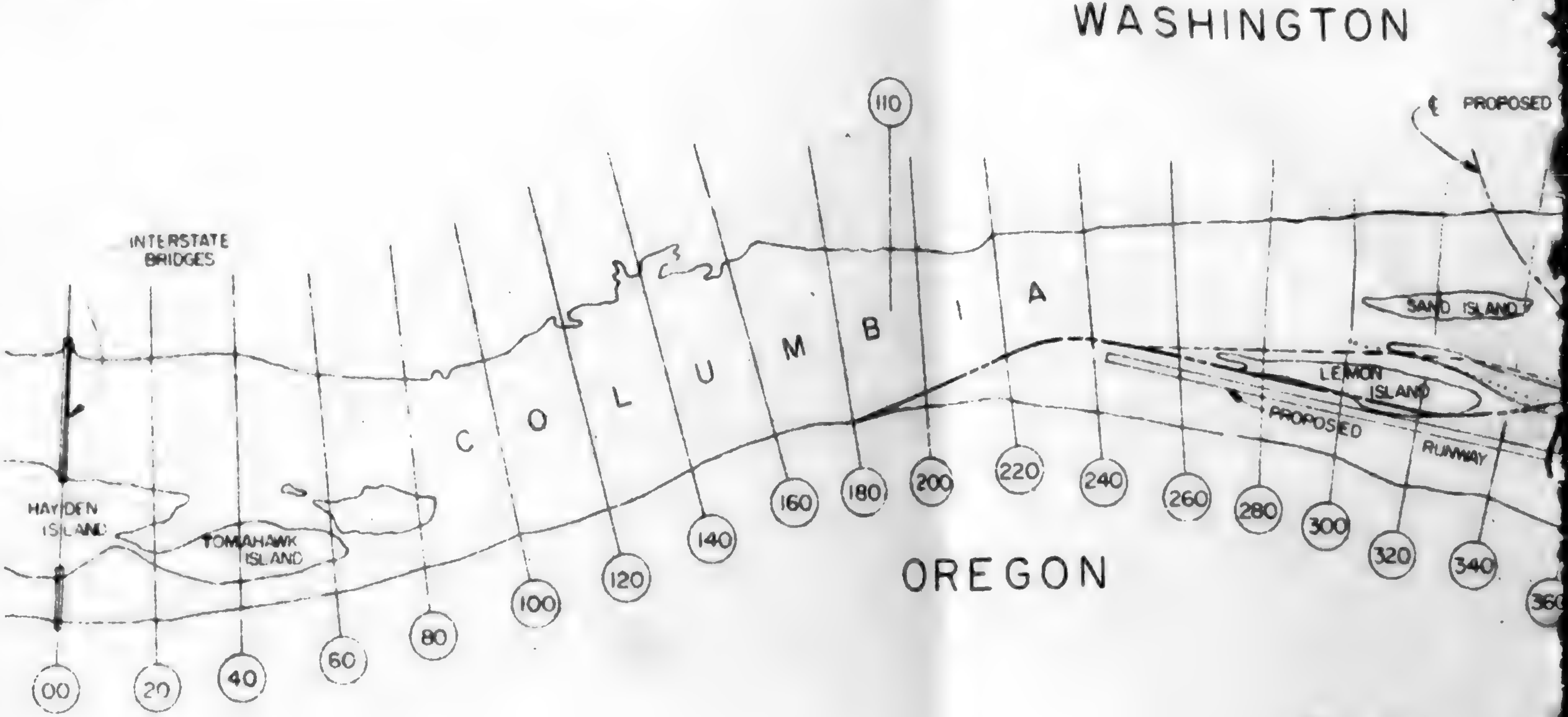
PORT OF PORTLAND
PORTLAND, OREGON

| | |
|---|---|
| AIRPORT EXPANSION | HYDRAULIC ANALYSES |

WATER SURFACE & VELOCITY
PROFILES, ALTERNATIVE 1

BY BAUER ENGINEERING INC.

| | | | |
|---|---|---|---|
| CHICAGO, ILLINOIS | FEB. 1968 | SHEET | OF |


WASHINGTON
OREGON
C O L U M B I A
INTERSTATE BRIDGES
HAYDEN ISLAND
TOMAHAWK ISLAND
SAND ISLAND
LEMON ISLAND
PROPOSED RUNWAY
℄ PROPOSED
00
20
40
60
80
100
110
120
140
160
180
200
220
240
260
280
300
320
340
360

PLAN

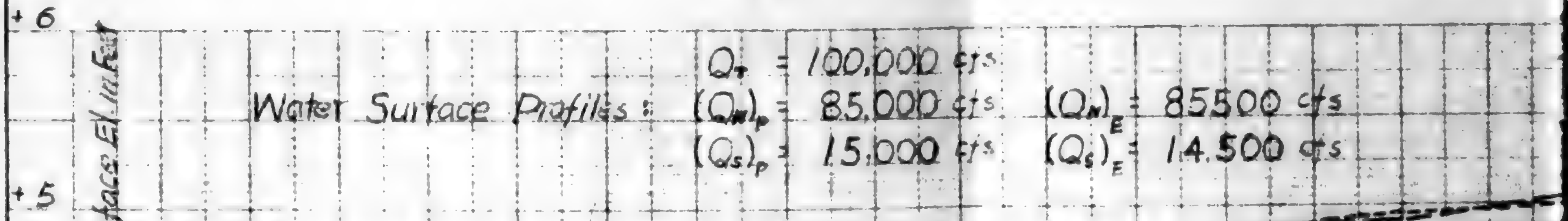
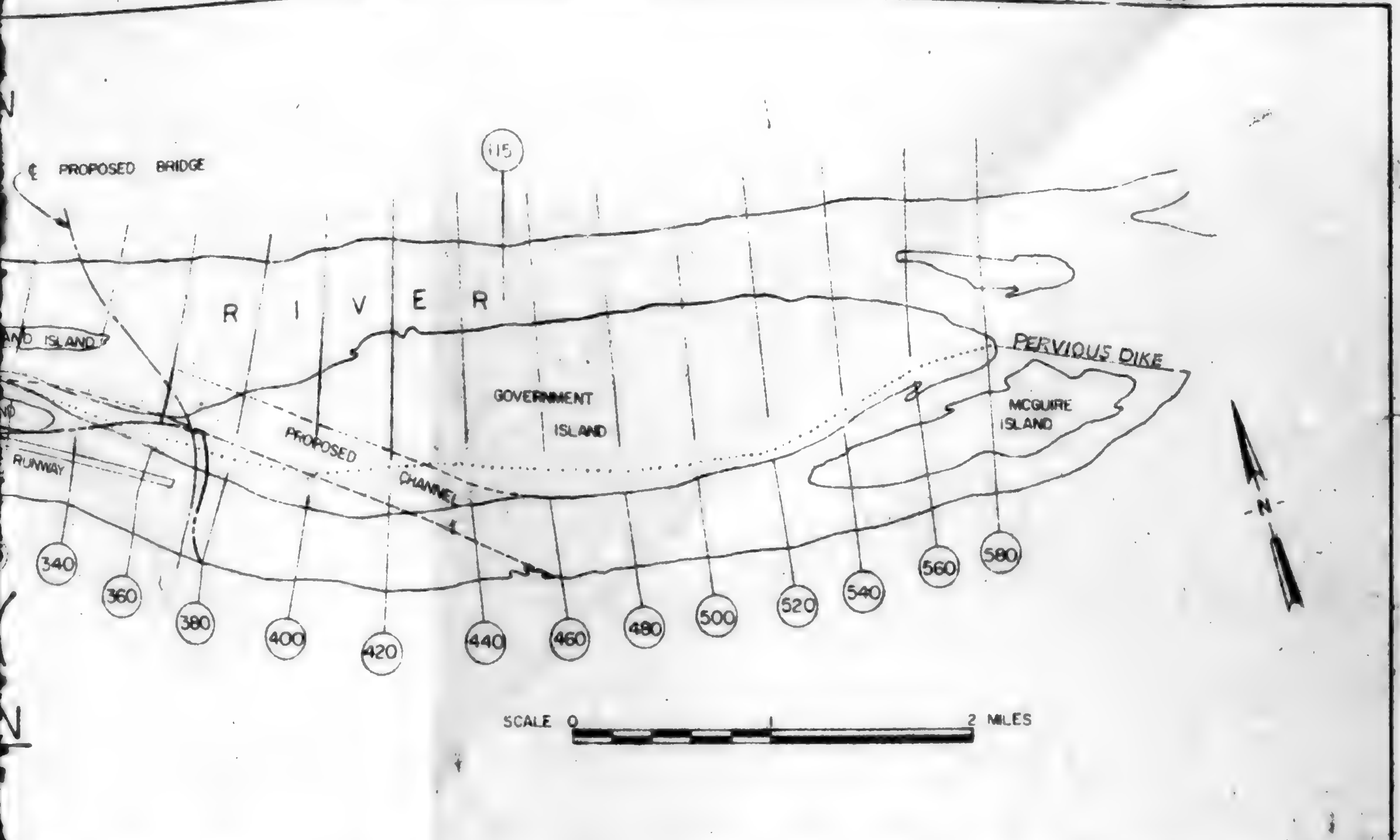
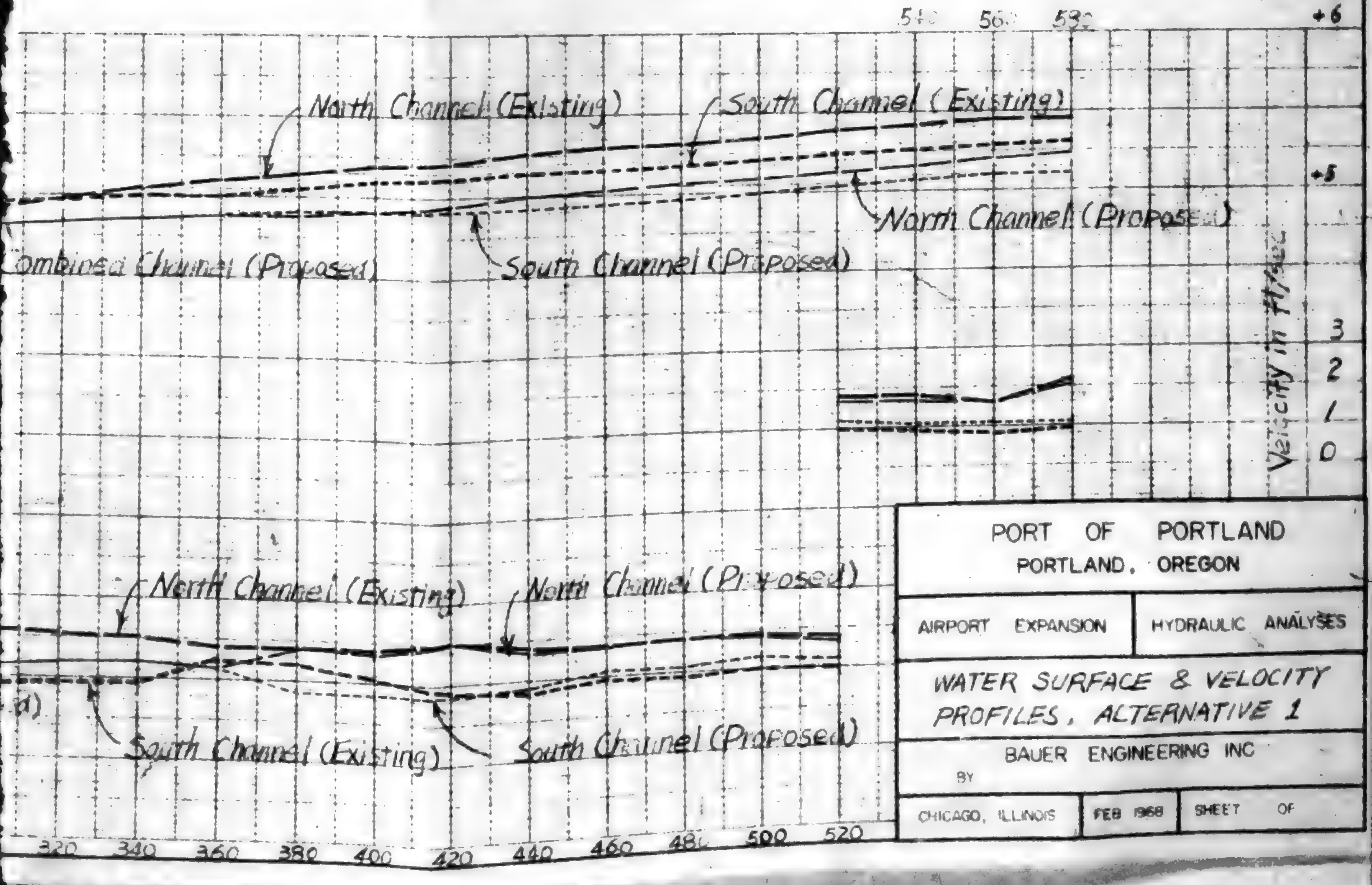

+6
+5
+4
Water Surface El. in Feet
$Q_T$ = 100,000 cfs
Water Surface Profiles: $(Q_N)_P$ = 85,000 cfs $(Q_N)_E$ = 85500 cfs
$(Q_S)_P$ = 15,000 cfs $(Q_S)_E$ = 14.500 cfs
Combined Channel (Existing)
Combined
$Q_T$ = 100,000 cfs
Velocity Profiles: $(Q_N)_P$ = 85,000 cfs $(Q_N)_E$ = 85500 cfs
$(Q_S)_P$ = 15,000 cfs $(Q_S)_E$ = 14.500 cfs
3
2
1
0
Velocity in ft/sec
Combined Channel (Existing)
Combined Channel (Proposed)
Distance in 100 FT. From Interstate Bridges
00
20
40
60
80
100
120
140
160
180
200
220
240
260
280
300
320

EXHIBIT K



℄ PROPOSED BRIDGE
115
R I V E R
ND ISLAND
ND
RUNWAY
PROPOSED CHANNEL
GOVERNMENT ISLAND
PERVIOUS DIKE
MCGUIRE ISLAND
N
340
360
380
400
420
440
460
480
500
520
540
560
580
SCALE 0
1
2 MILES



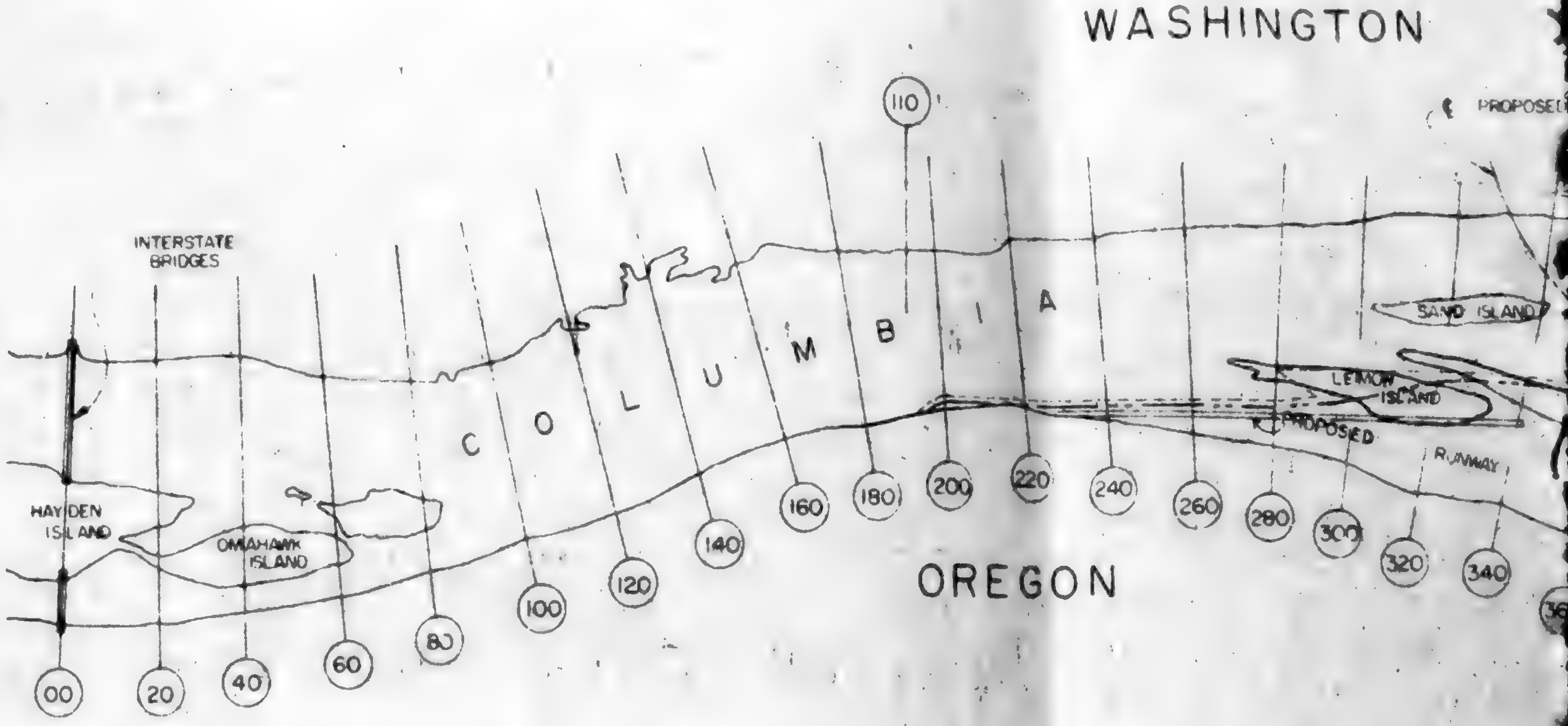
PORT OF PORTLAND
PORTLAND, OREGON

| AIRPORT EXPANSION | HYDRAULIC ANALYSES |
|---|---|

WATER SURFACE & VELOCITY
PROFILES, ALTERNATIVE 1

BY BAUER ENGINEERING INC

| CHICAGO, ILLINOIS | FEB 1968 | SHEET OF |
|---|---|---|


WASHINGTON
PROPOSED
INTERSTATE BRIDGES
HAYDEN ISLAND
OMAHAWK ISLAND
COLUMBIA
SAND ISLAND
LEMON ISLAND
PROPOSED
RUNWAY
OREGON
00
20
40
60
80
100
110
120
140
160
180
200
220
240
260
280
300
320
340

PLAN

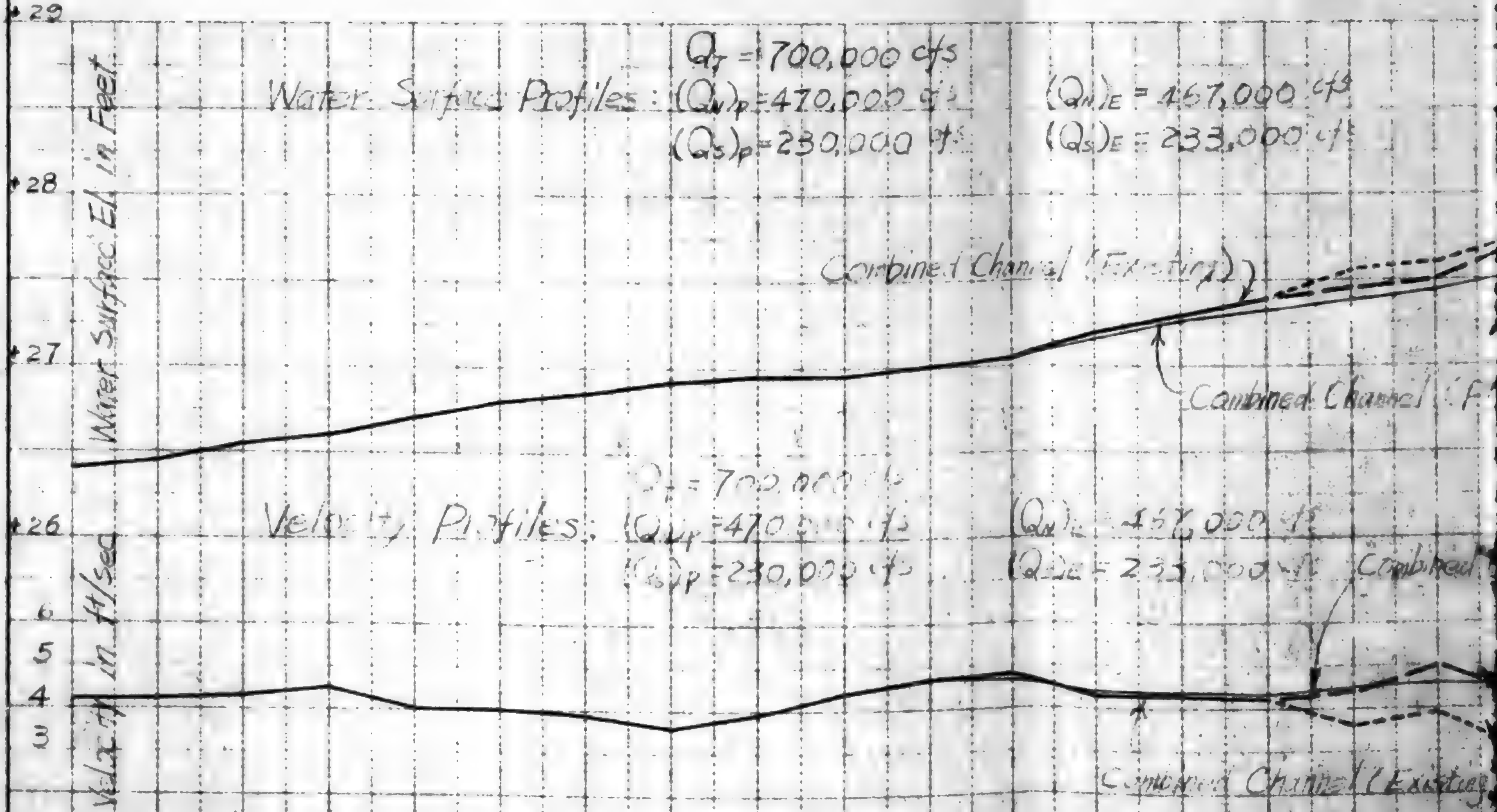
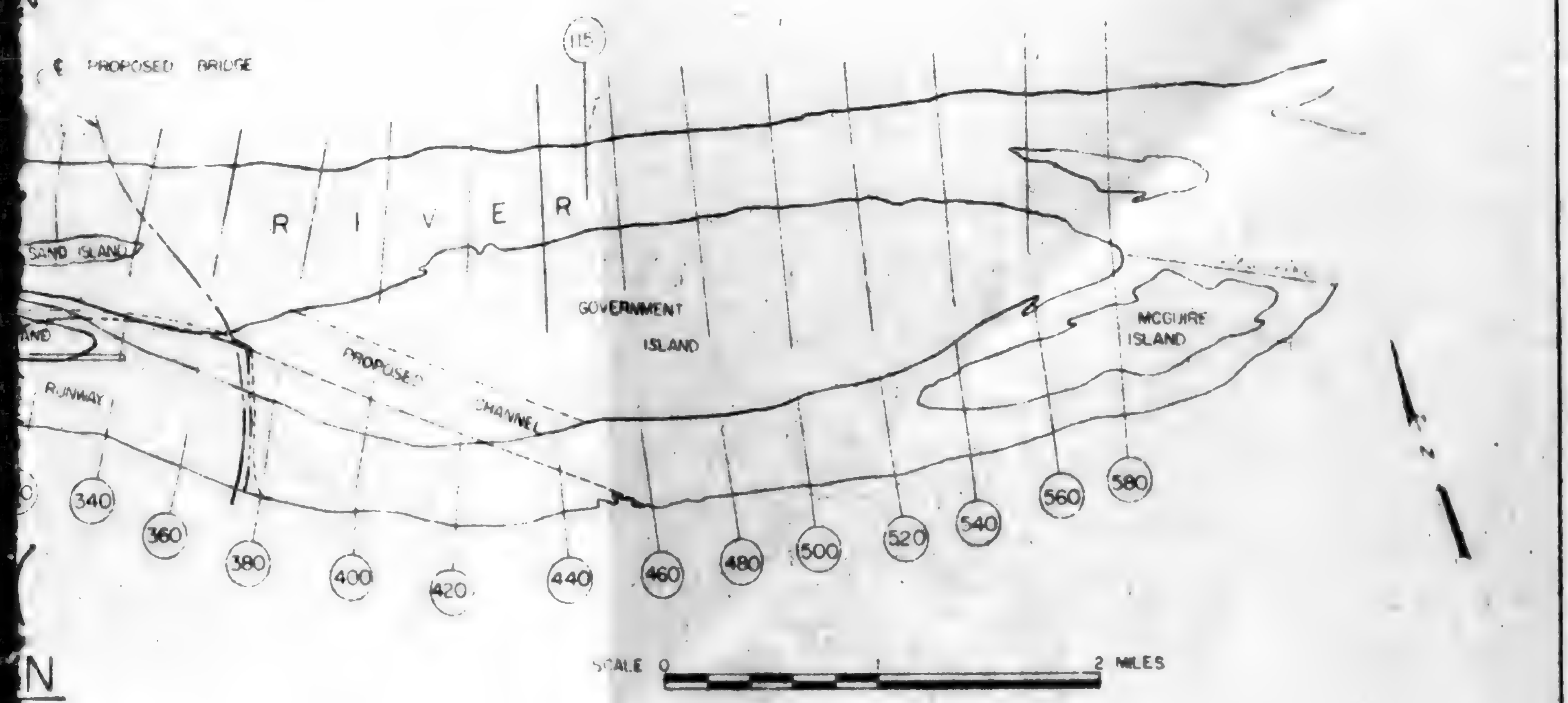
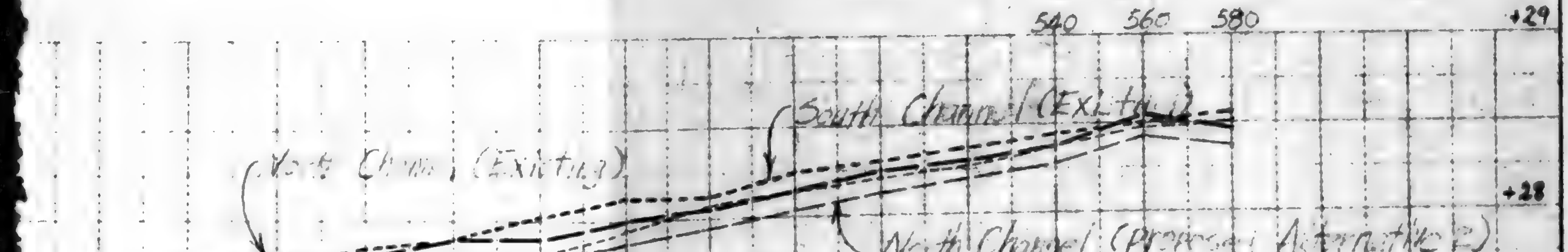

29
28
27
26
6
5
4
3
Water Surface El. in Feet
Velocity in ft/sec
$Q_T$ = 700,000 cfs
Water Surface Profiles: $(Q_N)_P$ = 470,000 cfs
$(Q_S)_P$ = 230,000 cfs
$(Q_N)_E$ = 467,000 cfs
$(Q_S)_E$ = 233,000 cfs
Combined Channel (Existing)
Combined Channel (F
$Q_T$ = 700,000 cfs
Velocity Profiles: $(Q_N)_P$ = 470,000 cfs
$(Q_S)_P$ = 230,000 cfs
$(Q_N)_E$ = 467,000 cfs
$(Q_S)_E$ = 233,000 cfs
Combined
Combined Channel (Existing
Distance in 100 Ft. From Interstate Bridges
00
20
40
60
80
100
120
140
160
180
200
220
240
260
280
300
320

EXHIBIT L



N
℄ PROPOSED BRIDGE
115
R I V E R
SAND ISLAND
GOVERNMENT ISLAND
MCGUIRE ISLAND
PROPOSED CHANNEL
RUNWAY
N
340
360
380
400
420
440
460
480
500
520
540
560
580
SCALE 0 1 2 MILES
N



PORT OF PORTLAND
PORTLAND, OREGON

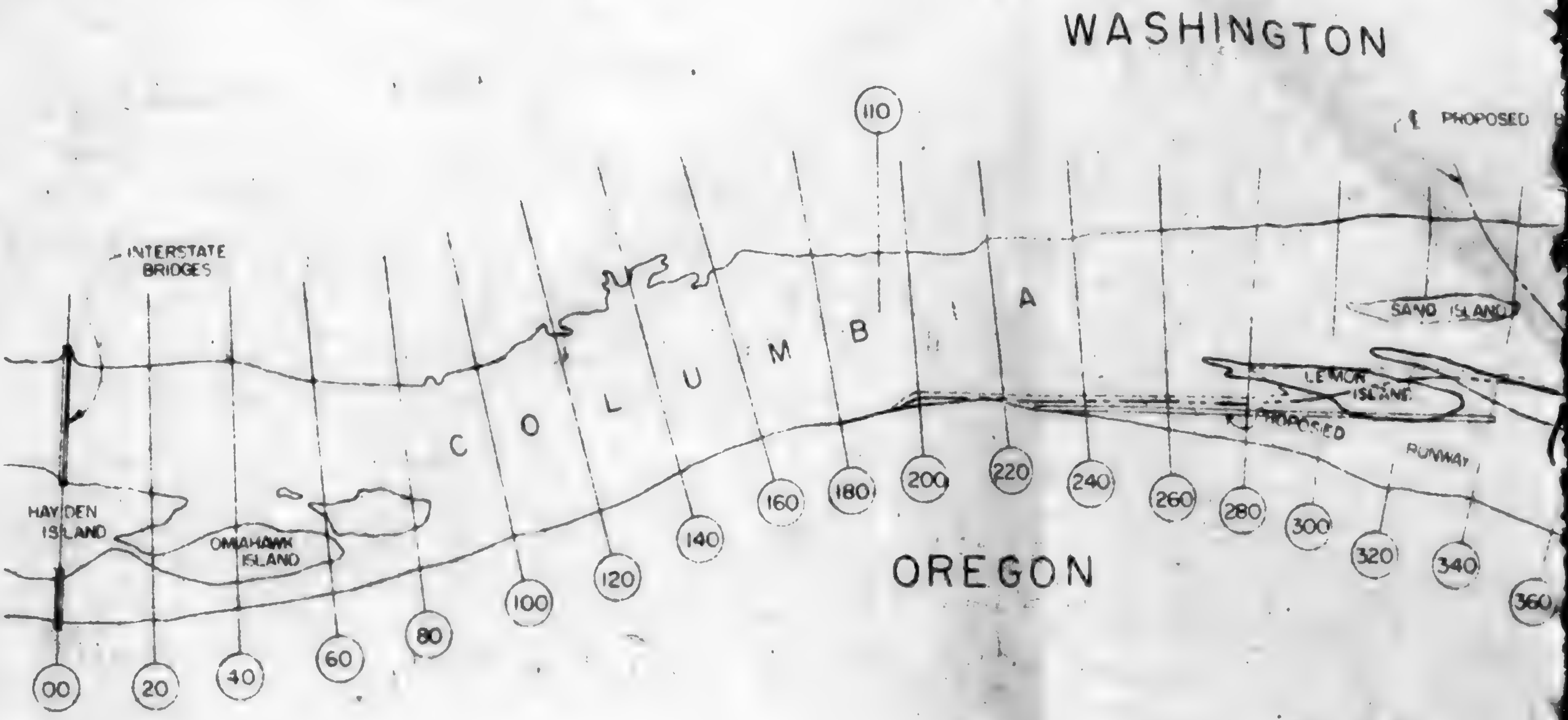
| AIRPORT EXPANSION | HYDRAULIC ANALYSES |
|---|---|

WATER SURFACE & VELOCITY PROFILES, ALTERNATIVE 2

BAUER ENGINEERING INC

BY

| CHICAGO, ILLINOIS | FEB 1968 | SHEET OF |
|---|---|---|


WASHINGTON
PROPOSED
INTERSTATE BRIDGES
C O L U M B I A
SAND ISLAND
LEMON ISLAND
PROPOSED
RUNWAY
HAYDEN ISLAND
OMAHAWK ISLAND
OREGON
110
00
20
40
60
80
100
120
140
160
180
200
220
240
260
280
300
320
340
360

## PLAN

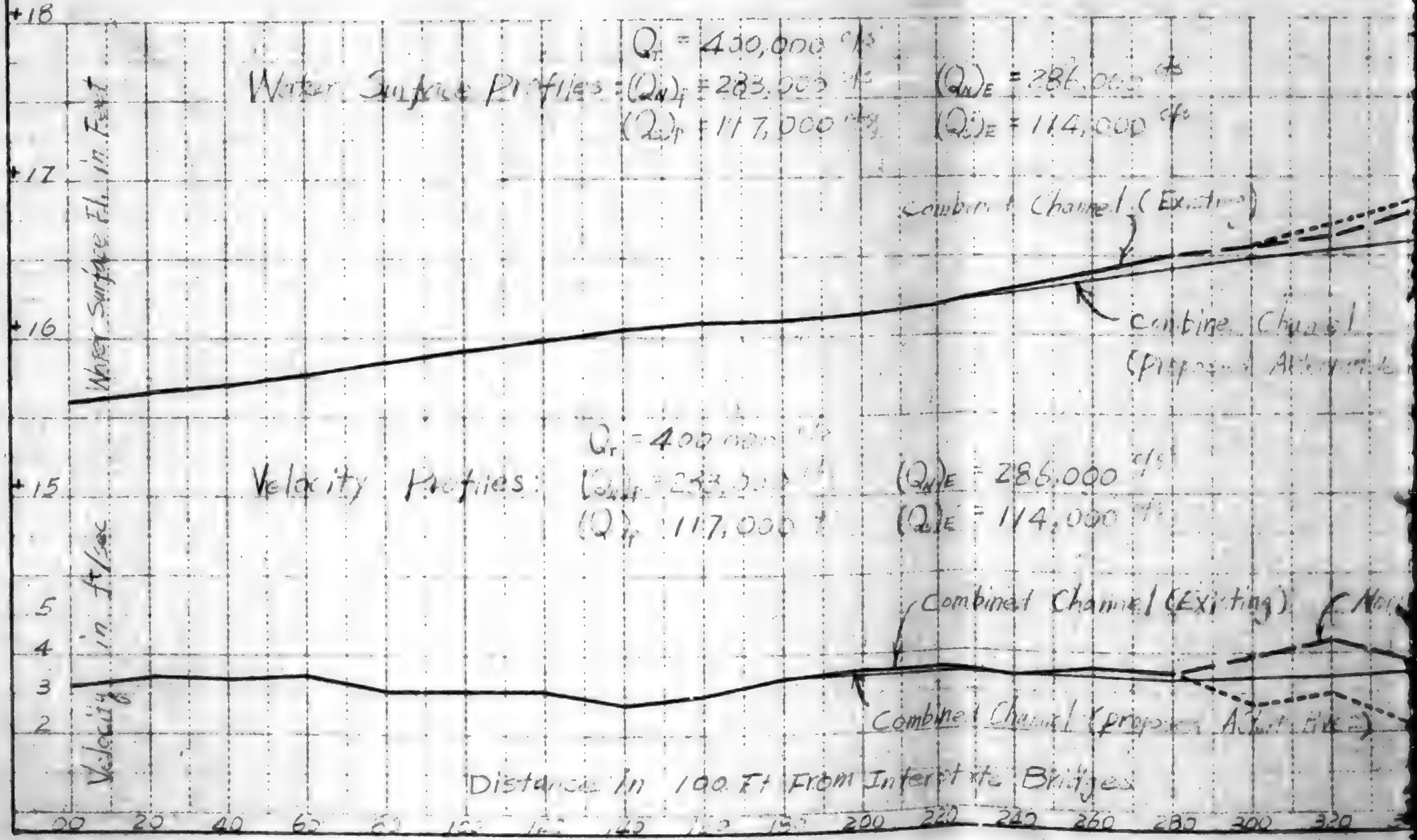
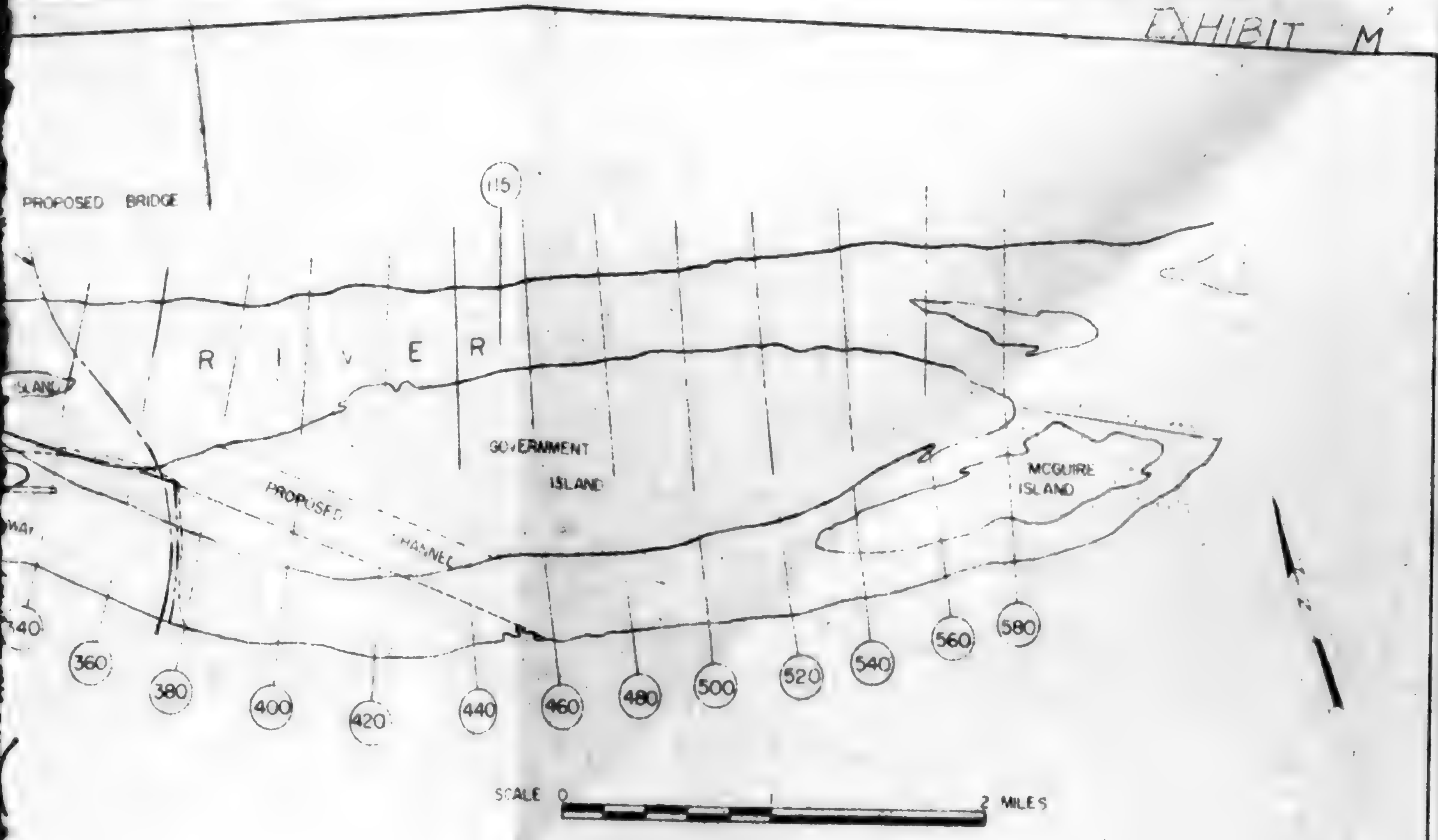
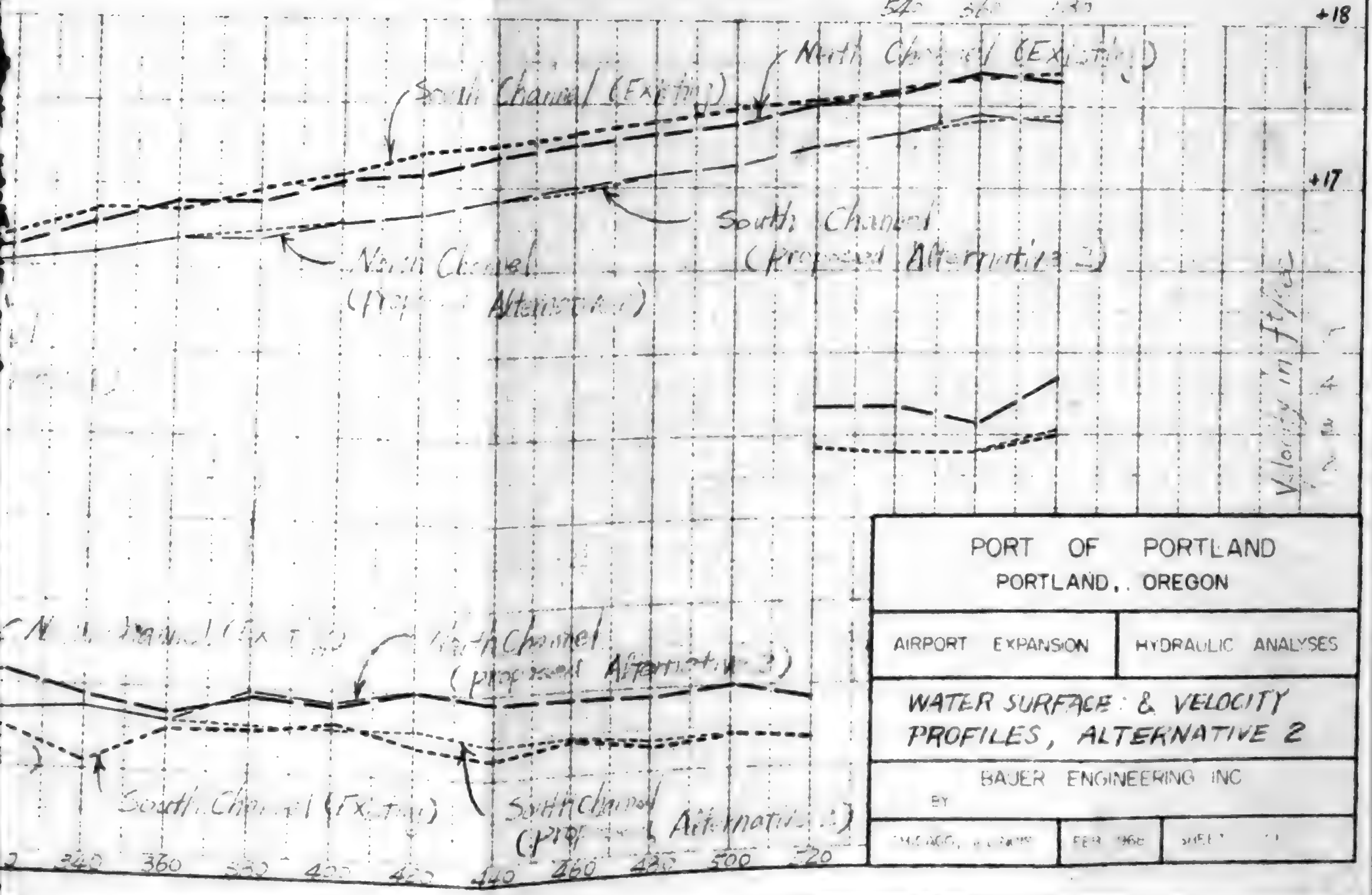

Water Surface Profiles: $Q_T = 400,000$ cfs
$(Q_N)_T = 283,000$ cfs
$(Q_S)_T = 117,000$ cfs
$(Q_N)_E = 286,000$ cfs
$(Q_S)_E = 114,000$ cfs
Combined Channel (Existing)
Combine Channel (Proposed Alternate)
Velocity Profiles: $Q_T = 400,000$ cfs
$(Q_N)_T = 283,000$ cfs
$(Q)_T = 117,000$ cfs
$(Q_N)_E = 286,000$ cfs
$(Q_S)_E = 114,000$ cfs
Combined Channel (Existing)
Combined Channel (proposed Alternate)
Water Surface El. in Feet
Velocity in ft/sec
+18
+17
+16
+15
5
4
3
2
Distance In 100 Ft From Interstate Bridges
00
20
40
60
80
100
120
140
160
180
200
220
240
260
280
300
320

EXHIBIT "M"


PROPOSED BRIDGE
115
R I V E R
ISLAND
GOVERNMENT ISLAND
PROPOSED CHANNEL
MCGUIRE ISLAND
340
360
380
400
420
440
460
480
500
520
540
560
580
SCALE 0 1 2 MILES



PORT OF PORTLAND
PORTLAND, OREGON

| AIRPORT EXPANSION | HYDRAULIC ANALYSES |
|---|---|

WATER SURFACE & VELOCITY PROFILES, ALTERNATIVE 2

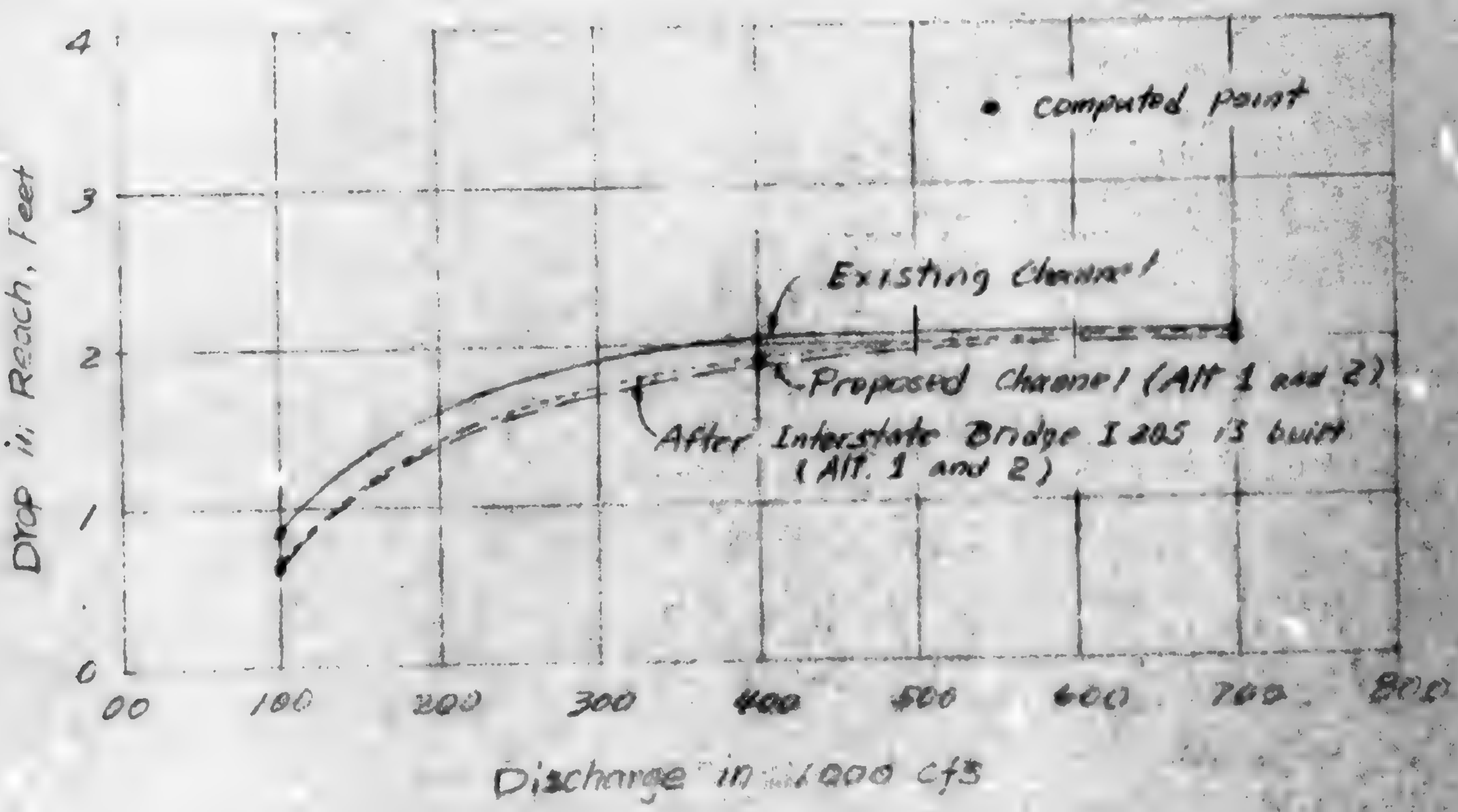
BAUER ENGINEERING INC
BY

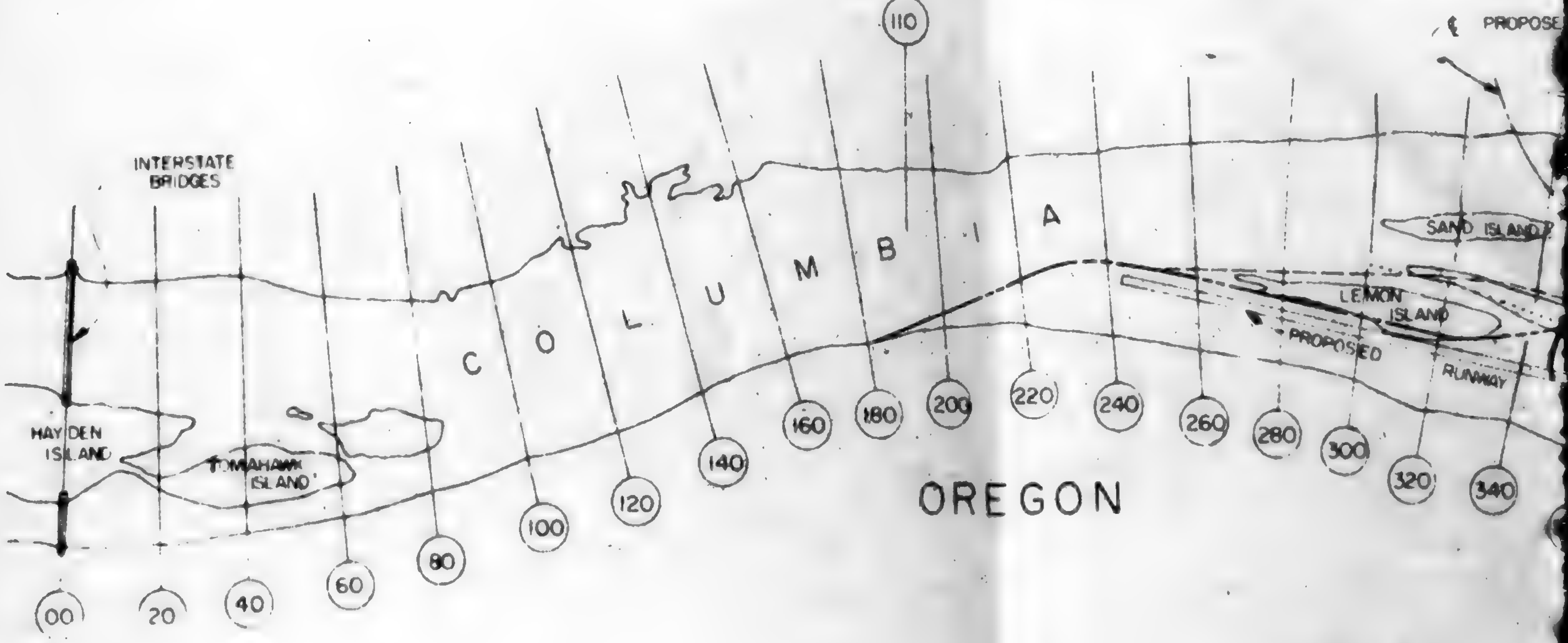
| CHICAGO, ILLINOIS | FEB 1968 | SHEET [illegible] |
|---|---|---|

EXHIBIT N

**BAUER ENGINEERING INC.**
**CHICAGO**

SUBJECT Drop in Reach From Sta. 00 to Sta. 582
COMPUTED C.Y.H. CHECKED K.H.C.
PROJECT Portland
FILE No. 6764
DATE 2/21/68 PAGE ___ OF ___ PAGES




WASHINGTON
PROPOSE
INTERSTATE BRIDGES
COLUMBIA
SAND ISLAND
LEMON ISLAND
PROPOSED
RUNWAY
HAYDEN ISLAND
TOMAHAWK ISLAND
OREGON
110
00
20
40
60
80
100
120
140
160
180
200
220
240
260
280
300
320
340

PLAN

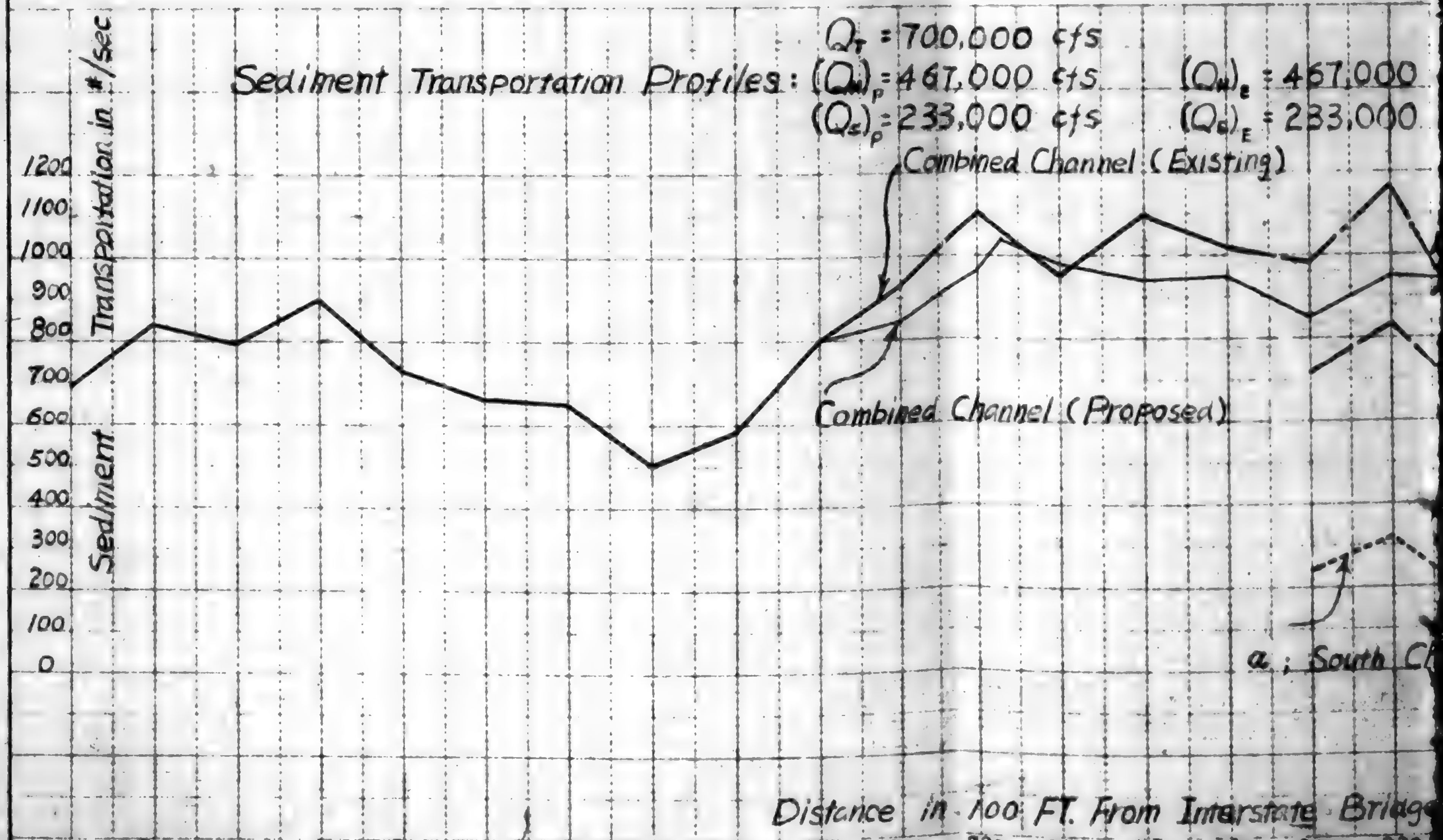
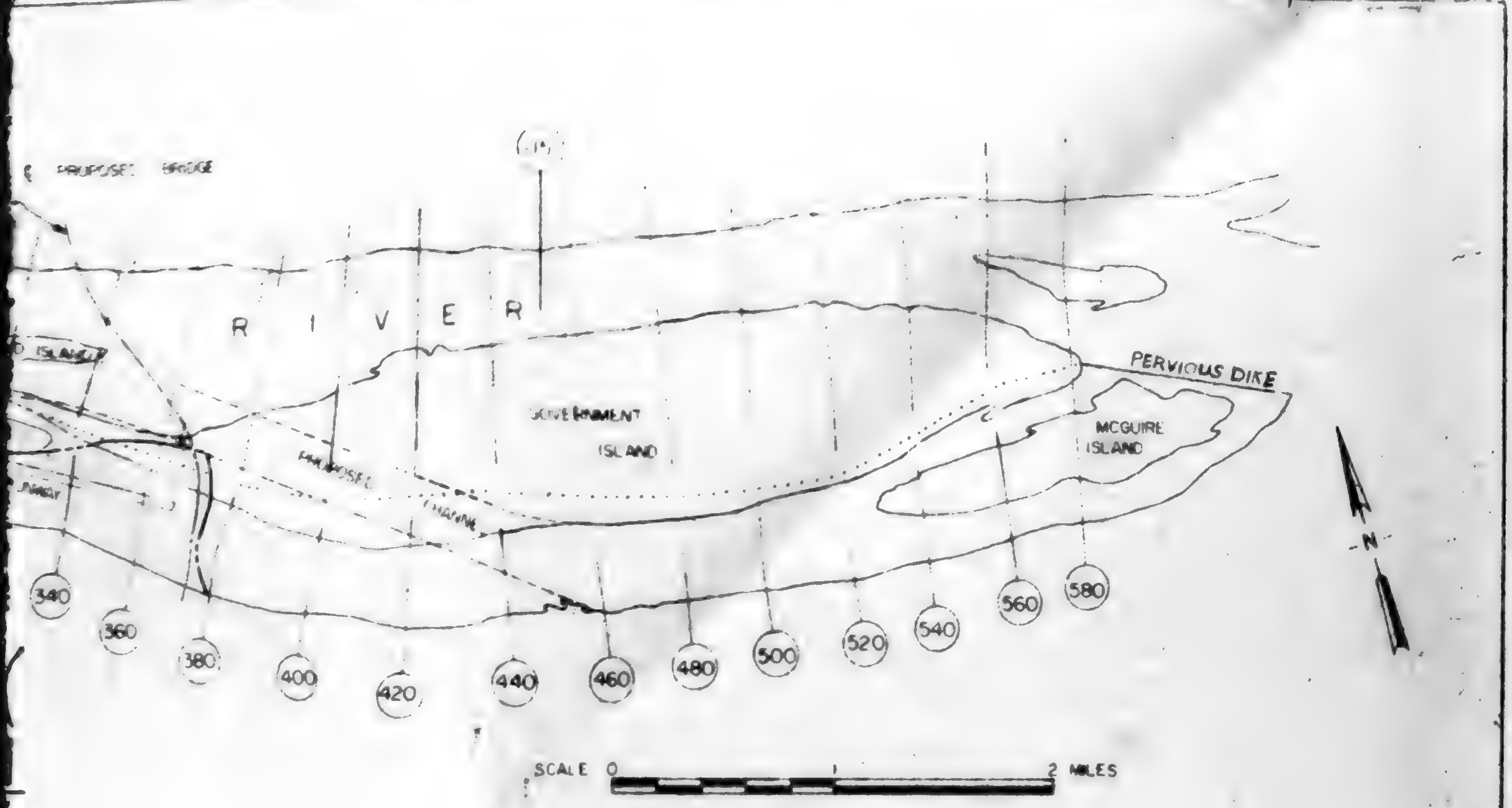
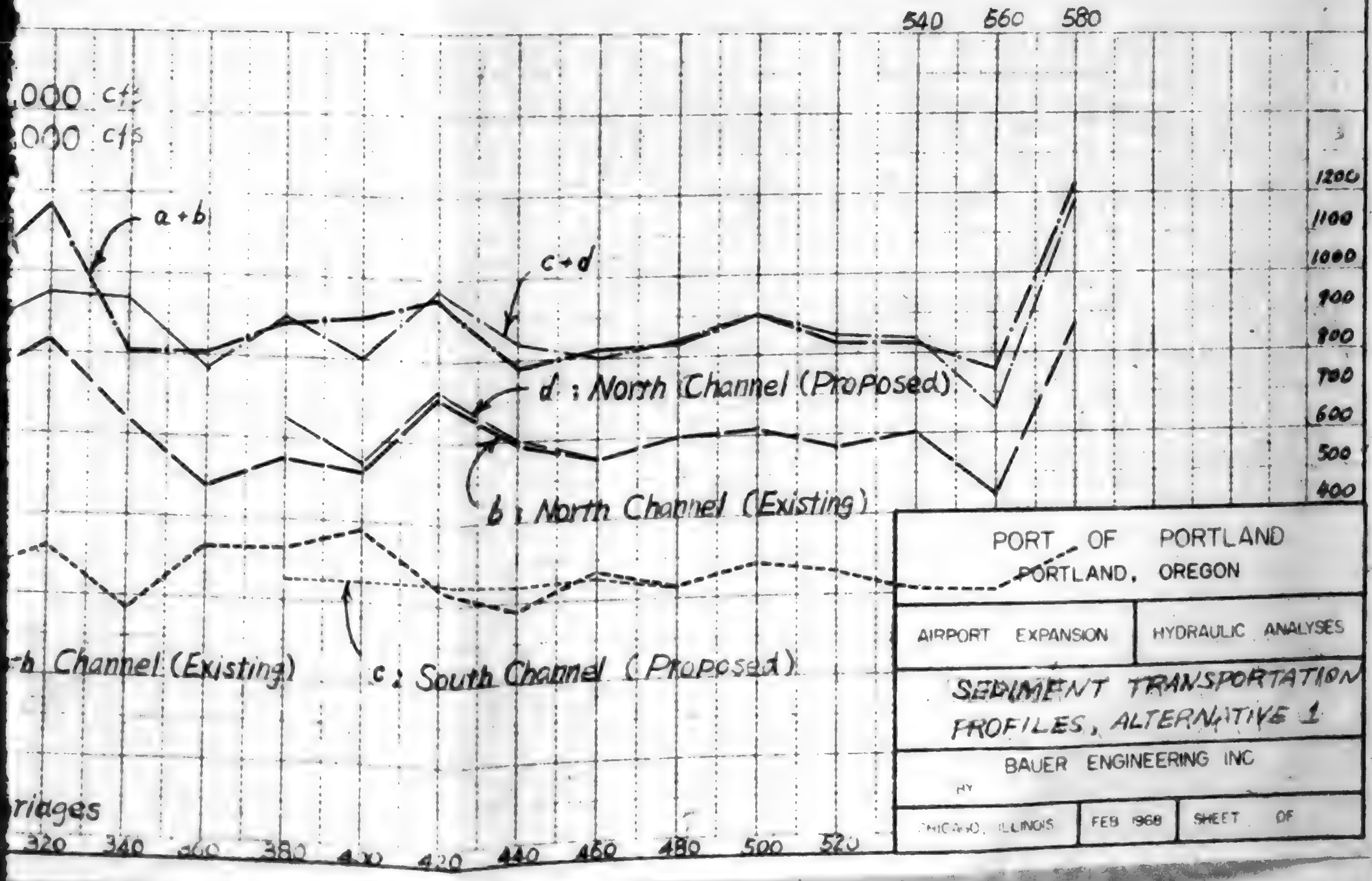

Sediment Transportation Profiles:
$Q_T$ = 700,000 cfs
$(Q_N)_P$ = 467,000 cfs
$(Q_S)_P$ = 233,000 cfs
$(Q_N)_E$ = 467,000
$(Q_S)_E$ = 233,000
Combined Channel (Existing)
Combined Channel (Proposed)
a ; South Ch
Sediment Transportation in #/sec
1200
1100
1000
900
800
700
600
500
400
300
200
100
0
Distance in 100 FT. From Interstate Bridge
00
20
40
60
80
100
120
140
160
180
200
220
240
260
280
300
320

EXHIBIT 10



PROPOSED BRIDGE
R I V E R
ISLAND
GOVERNMENT ISLAND
PROPOSED CHANNEL
PERVIOUS DIKE
MCGUIRE ISLAND
N
340
360
380
400
420
440
460
480
500
520
540
560
580
SCALE 0 1 2 MILES



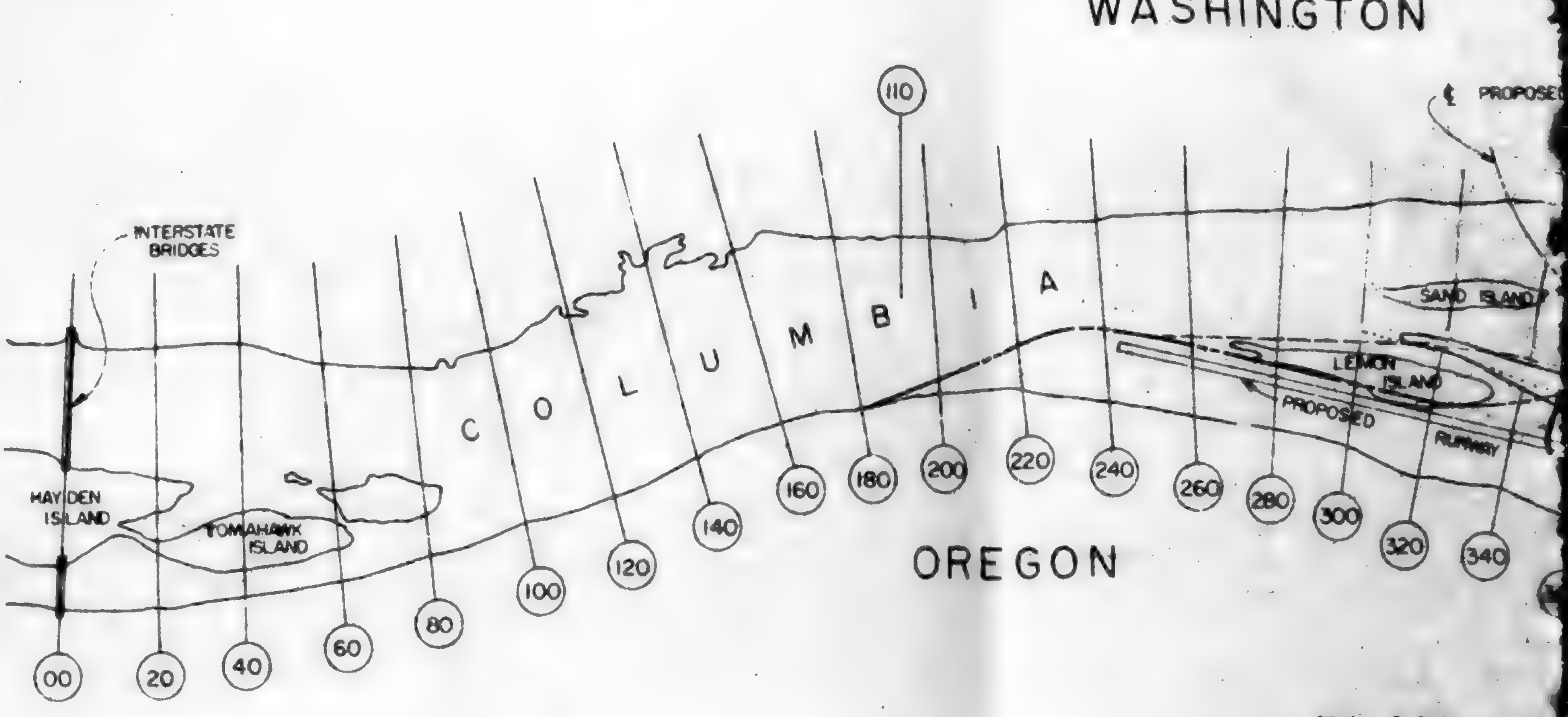
PORT OF PORTLAND
PORTLAND, OREGON

AIRPORT EXPANSION | HYDRAULIC ANALYSES

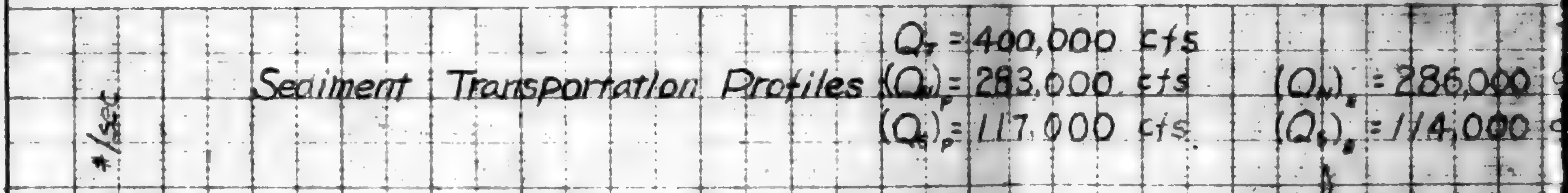
SEDIMENT TRANSPORTATION
PROFILES, ALTERNATIVE 1

BAUER ENGINEERING INC
BY

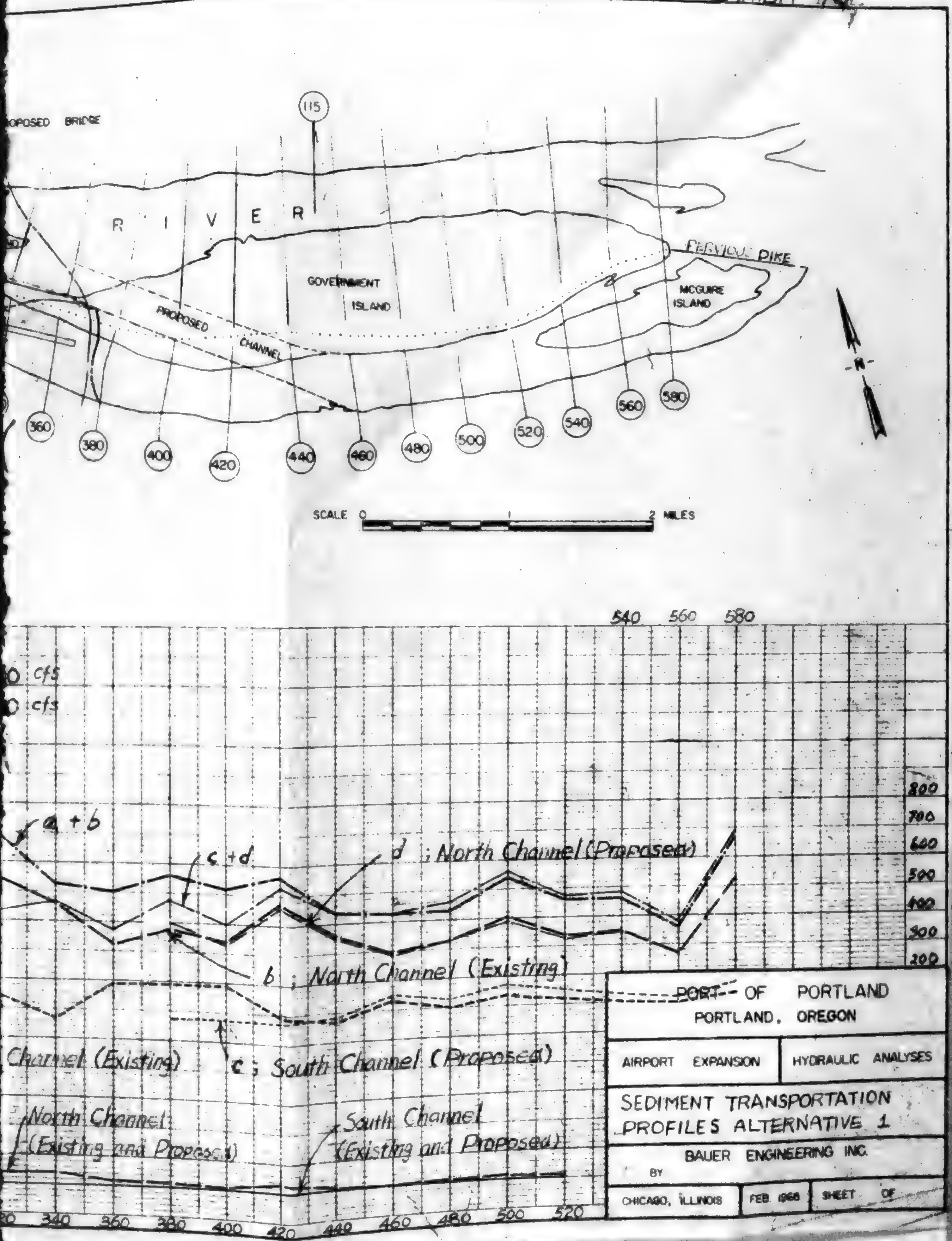
CHICAGO, ILLINOIS | FEB 1968 | SHEET OF


WASHINGTON
OREGON
COLUMBIA
INTERSTATE BRIDGES
HAYDEN ISLAND
TOMAHAWK ISLAND
SAND ISLAND
LEMON ISLAND
PROPOSED RUNWAY
℄ PROPOSED
00
20
40
60
80
100
110
120
140
160
180
200
220
240
260
280
300
320
340

## PLAN


Sediment Transportation Profiles
$Q_T$ = 400,000 cfs
$(Q_N)_P$ = 283,000 cfs
$(Q_S)_P$ = 117,000 cfs
$(Q_N)_E$ = 286,000
$(Q_S)_E$ = 114,000
Combined Channel (Existing)
Combined Channel (Proposed)
a : South Ch
Sediment Transportation in #/sec.
800
700
600
500
400
300
200
100
0
Sediment Transportation Profiles : $Q_T$ = 100,000 cfs
Combined Channel
100
0
Distance in 100 FT. from Interstate Bridges
00
20
40
60
80
100
120
140
160
180
200
220
240
260
280
300
320

EXHIBIT



OPOSED BRIDGE
115
R I V E R
GOVERNMENT ISLAND
PROPOSED CHANNEL
PERVIOUS PIKE
MCGUIRE ISLAND
N
360
380
400
420
440
460
480
500
520
540
560
580
SCALE 0 1 2 MILES
540 560 580
0 cfs
0 cfs
800
700
600
500
400
300
200
a + b
c + d
d ; North Channel (Proposed)
b ; North Channel (Existing)
Channel (Existing)
c ; South Channel (Proposed)
North Channel (Existing and Proposed)
South Channel (Existing and Proposed)
20
340
360
380
400
420
440
460
480
500
520

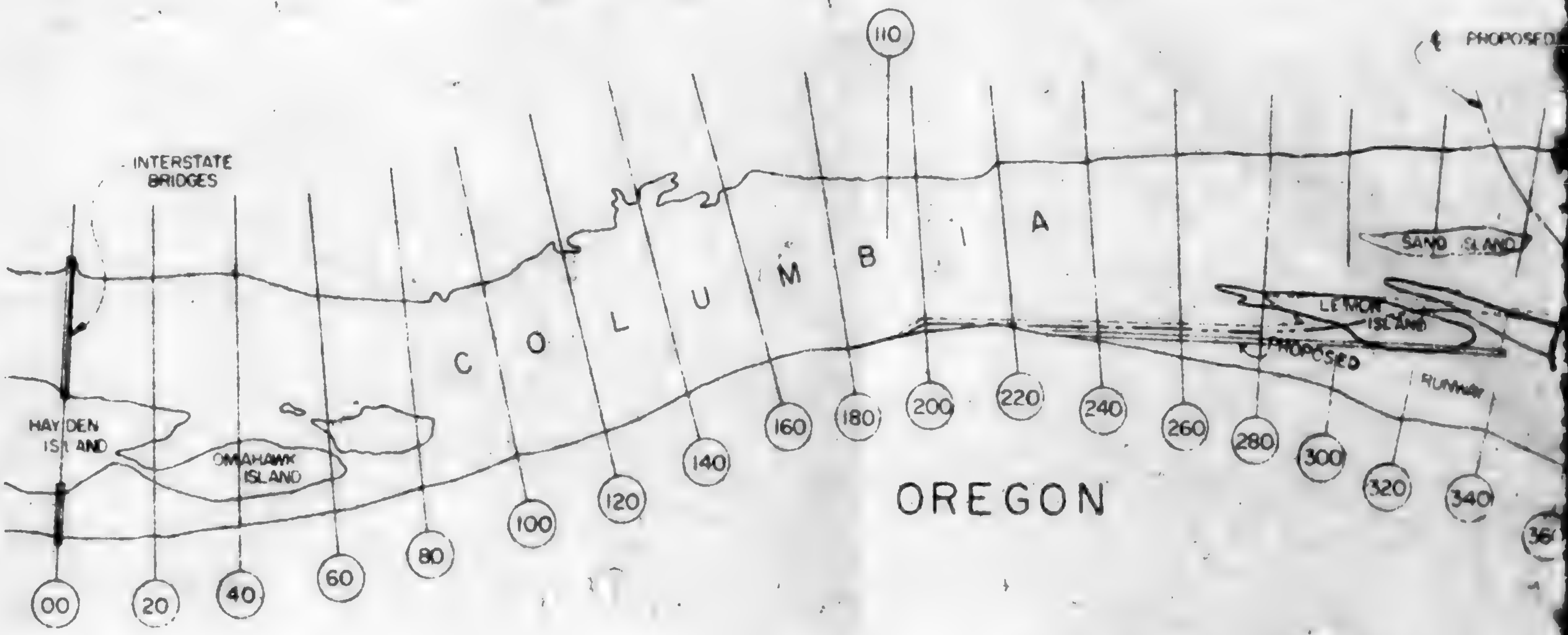
PORT OF PORTLAND
PORTLAND, OREGON

AIRPORT EXPANSION | HYDRAULIC ANALYSES

SEDIMENT TRANSPORTATION
PROFILES ALTERNATIVE 1

BAUER ENGINEERING INC.
BY

CHICAGO, ILLINOIS | FEB. 1968 | SHEET OF


WASHINGTON
PROPOSED
INTERSTATE BRIDGES
COLUMBIA
SAND ISLAND
LEMON ISLAND
PROPOSED
RUNWAY
HAYDEN ISLAND
OMAHAWK ISLAND
OREGON
00
20
40
60
80
100
110
120
140
160
180
200
220
240
260
280
300
320
340
36

PLAN

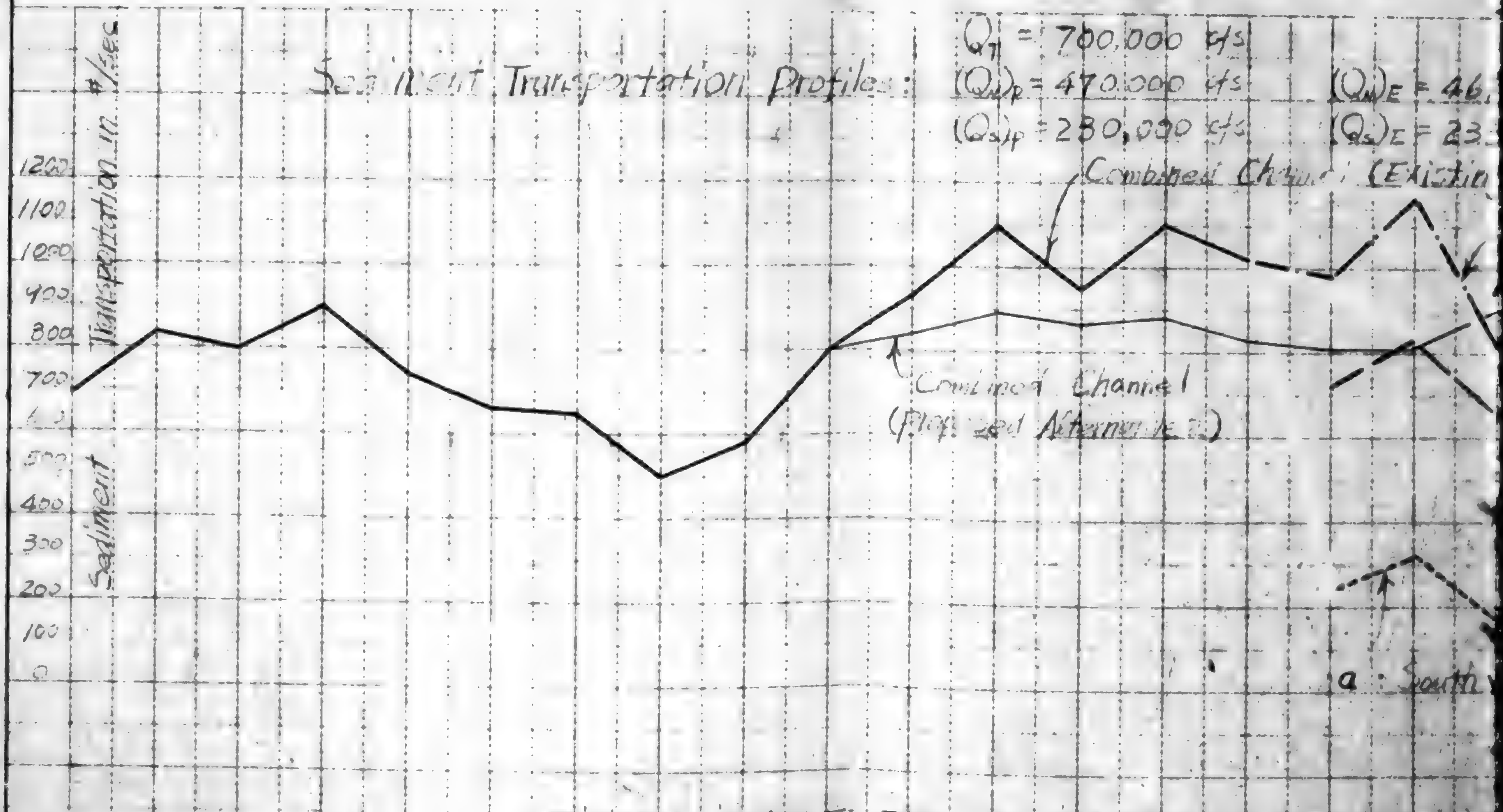
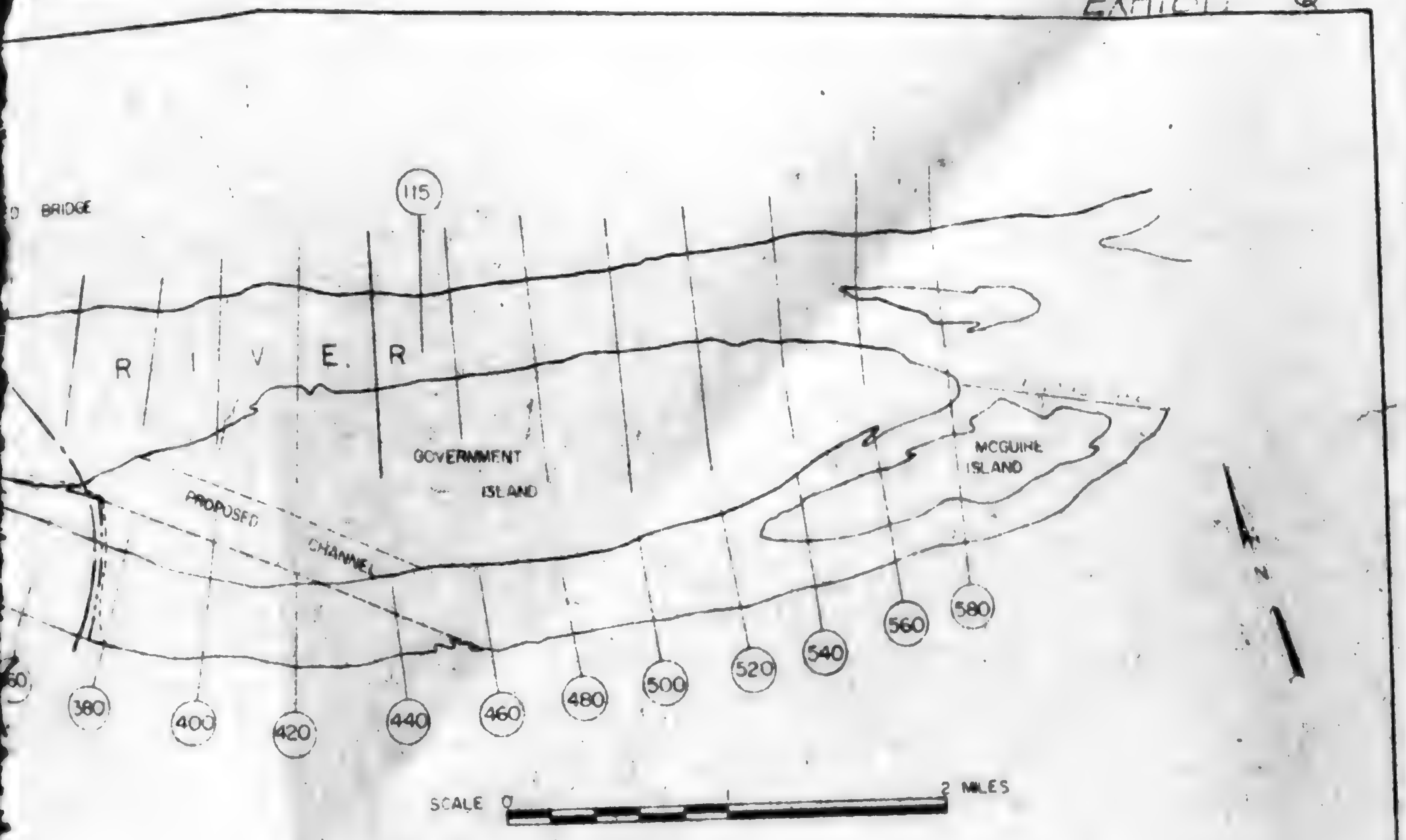
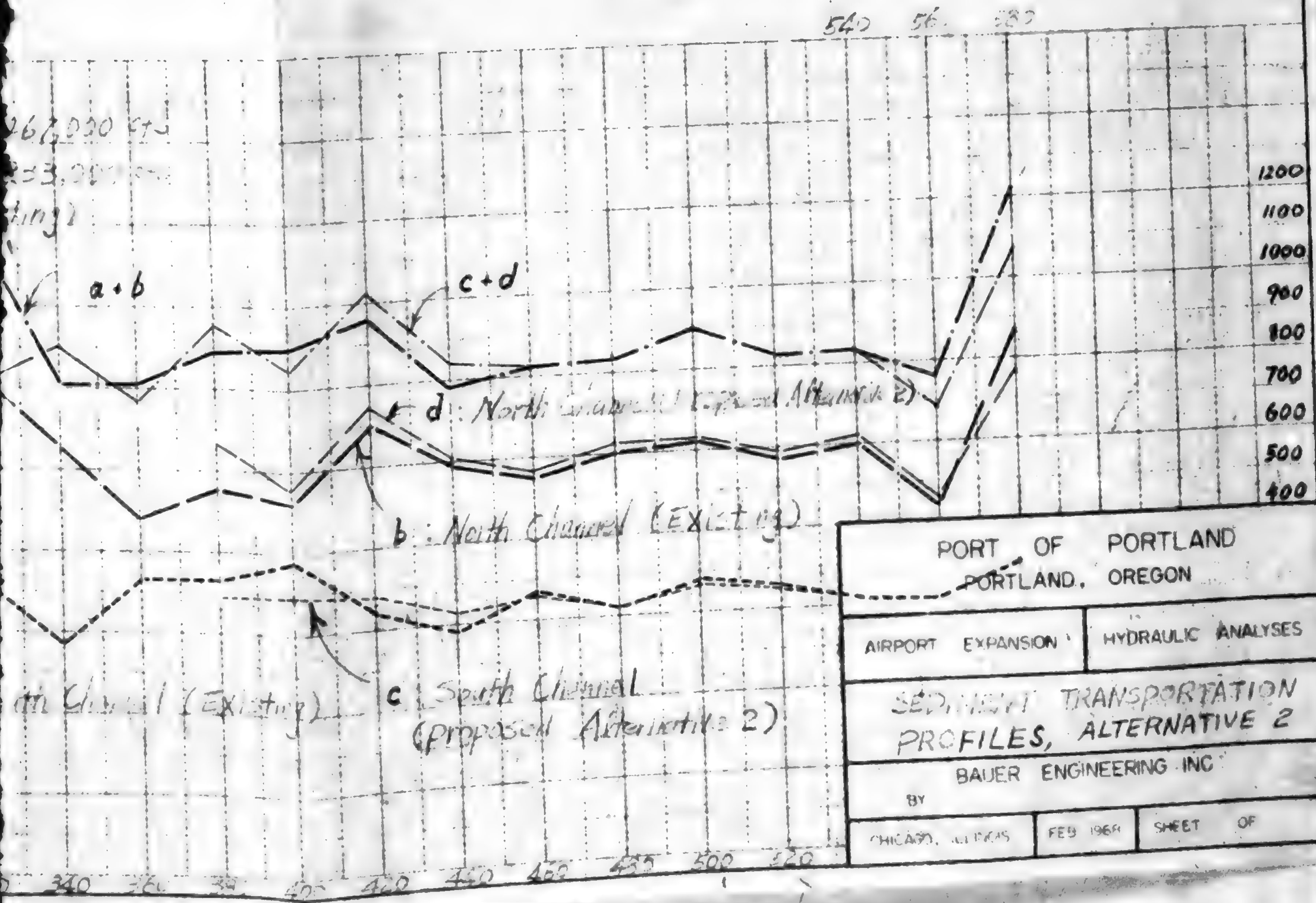

Sediment Transportation Profiles:
$Q_T$ = 700,000 cfs
$(Q_w)_P$ = 470,000 cfs
$(Q_s)_P$ = 230,000 cfs
$(Q_w)_E$ = 46.
$(Q_s)_E$ = 23.
Combined Channel (Existin
Combined Channel (Proposed Alternate)
a : South
Sediment Transportation in #/sec.
1200
1100
1000
900
800
700
600
500
400
300
200
100
0
Distance in 100 Ft From Interstate Bridges
00
20
40
60
80
100
120
140
160
180
200
220
240
260
280
300
320
34

EXHIBIT Q


BRIDGE
R I V E R
115
GOVERNMENT ISLAND
PROPOSED CHANNEL
MCGUIRE ISLAND
N
360
380
400
420
440
460
480
500
520
540
560
580
SCALE 0 1 2 MILES

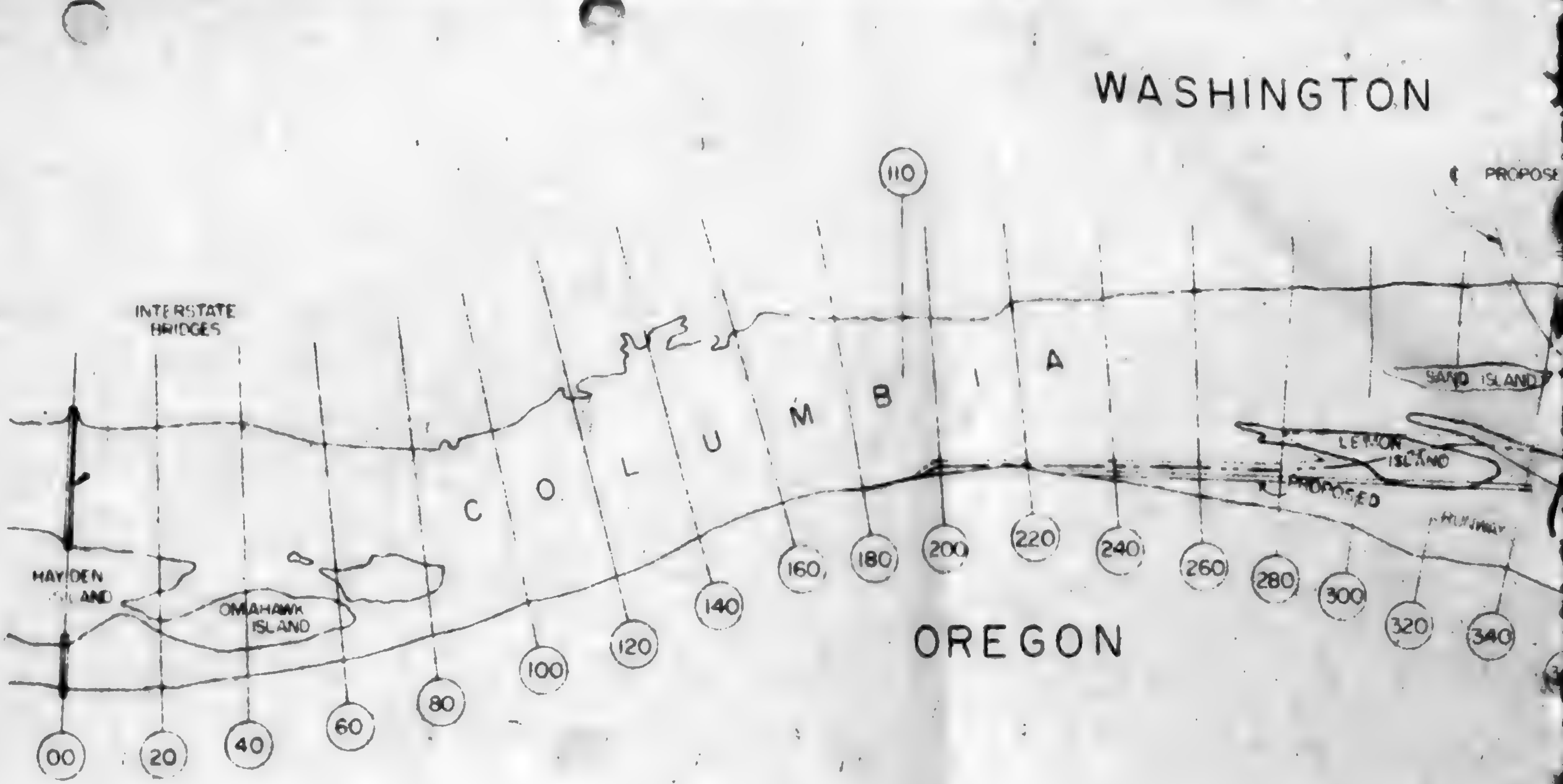


PORT OF PORTLAND
PORTLAND, OREGON

AIRPORT EXPANSION
HYDRAULIC ANALYSES

SEDIMENT TRANSPORTATION PROFILES, ALTERNATIVE 2

BAUER ENGINEERING INC
BY
CHICAGO, ILLINOIS
FEB 1968
SHEET OF


WASHINGTON
PROPOSE
INTERSTATE BRIDGES
C O L U M B I A
SAND ISLAND
LEMON ISLAND
PROPOSED
HIGHWAY
HAYDEN ISLAND
OMAHAWK ISLAND
OREGON
110
00
20
40
60
80
100
120
140
160
180
200
220
240
260
280
300
320
340

PLAN

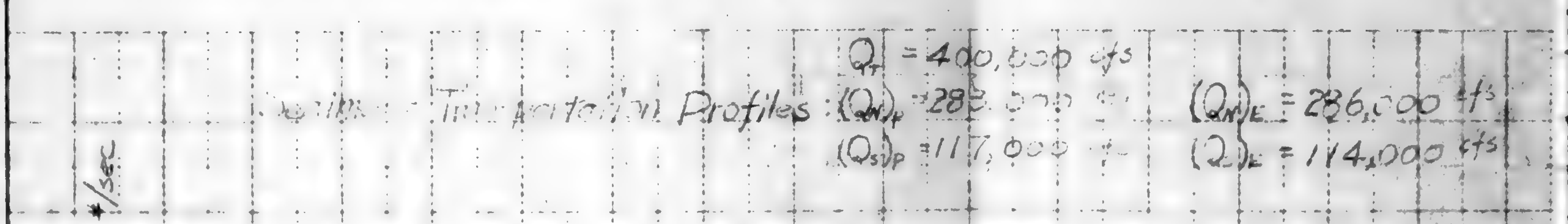
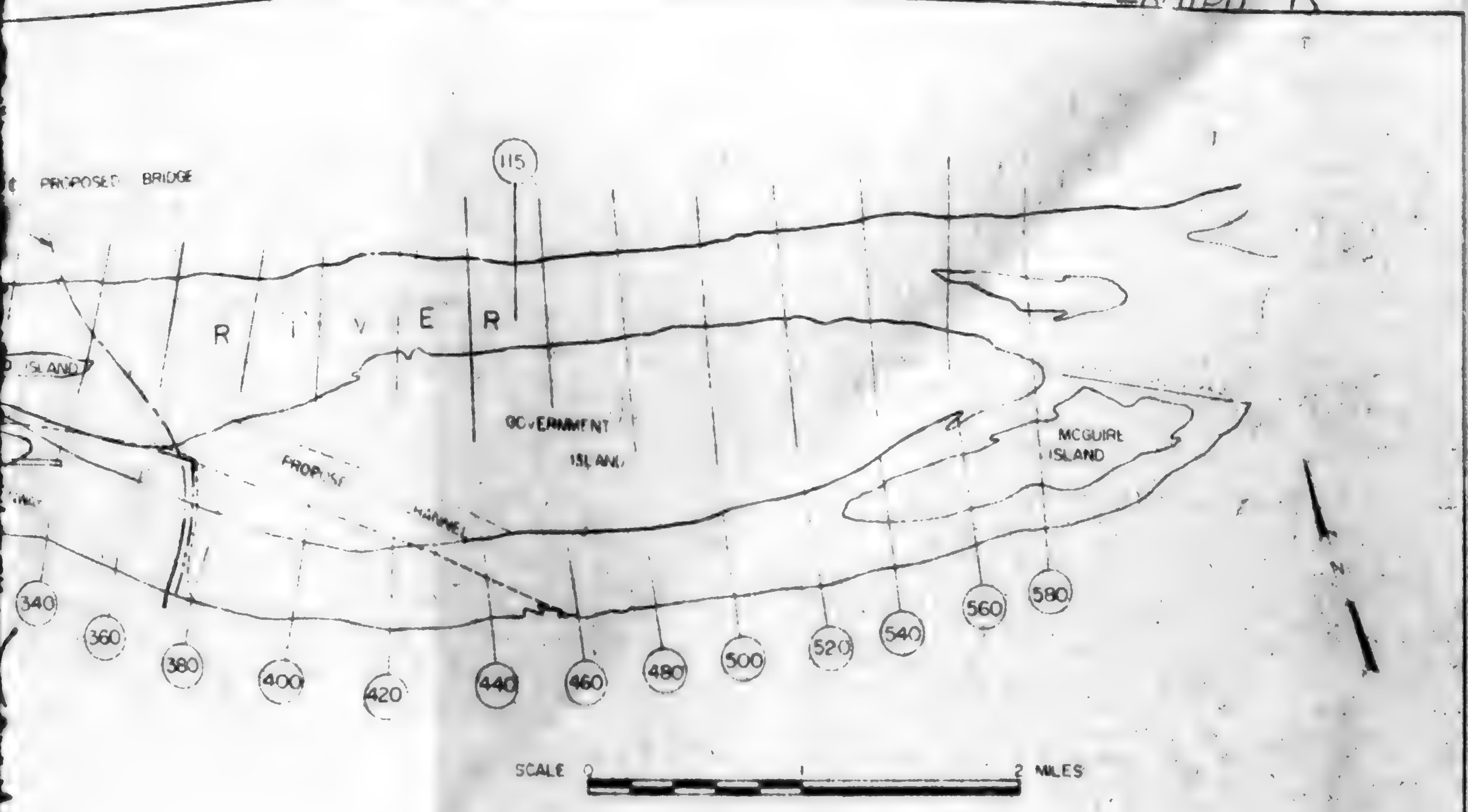
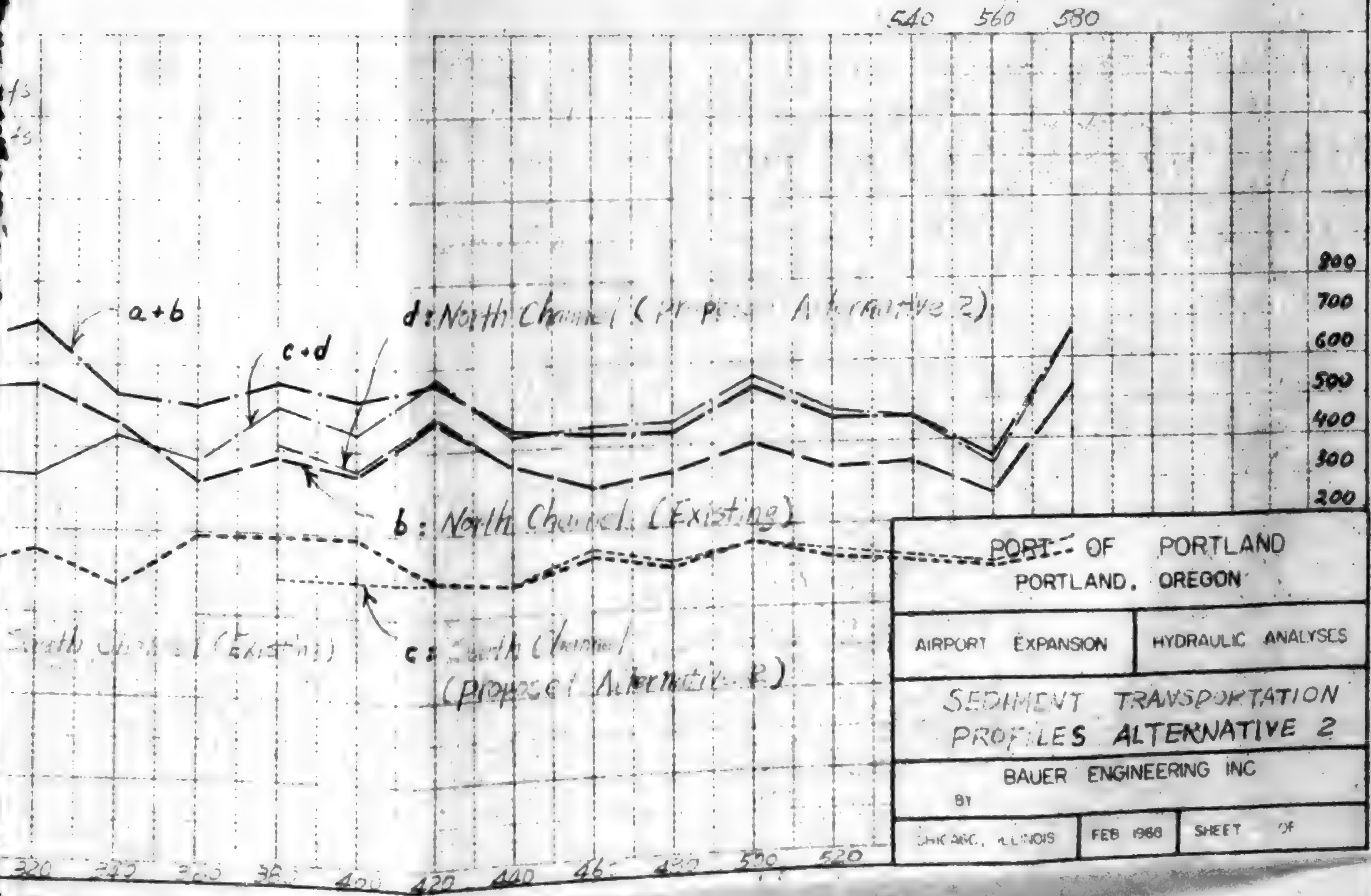

$Q_T$ = 400,000 cfs
Sediment Transportation Profiles: $(Q_N)_P$ = 283,000 cfs
$(Q_S)_P$ = 117,000 cfs
$(Q_N)_E$ = 286,000 cfs
$(Q_S)_E$ = 114,000 cfs
Sediment Transportation in #/sec
800
700
600
500
400
300
200
100
0
Combined Channel (Existing)
Combined Channel (Proposed Alternative)
a: South
Distance in 100 Ft. From Interstate Bridges
00
20
40
60
80
100
120
140
160
180
200
220
240
260
280
300
320

EXHIBIT R


PROPOSED BRIDGE
115
R I V E R
ISLAND
GOVERNMENT ISLAND
PROPOSED CHANNEL
MCGUIRE ISLAND
N
340
360
380
400
420
440
460
480
500
520
540
560
580
SCALE 0 1 2 MILES



PORT OF PORTLAND
PORTLAND, OREGON

AIRPORT EXPANSION | HYDRAULIC ANALYSES

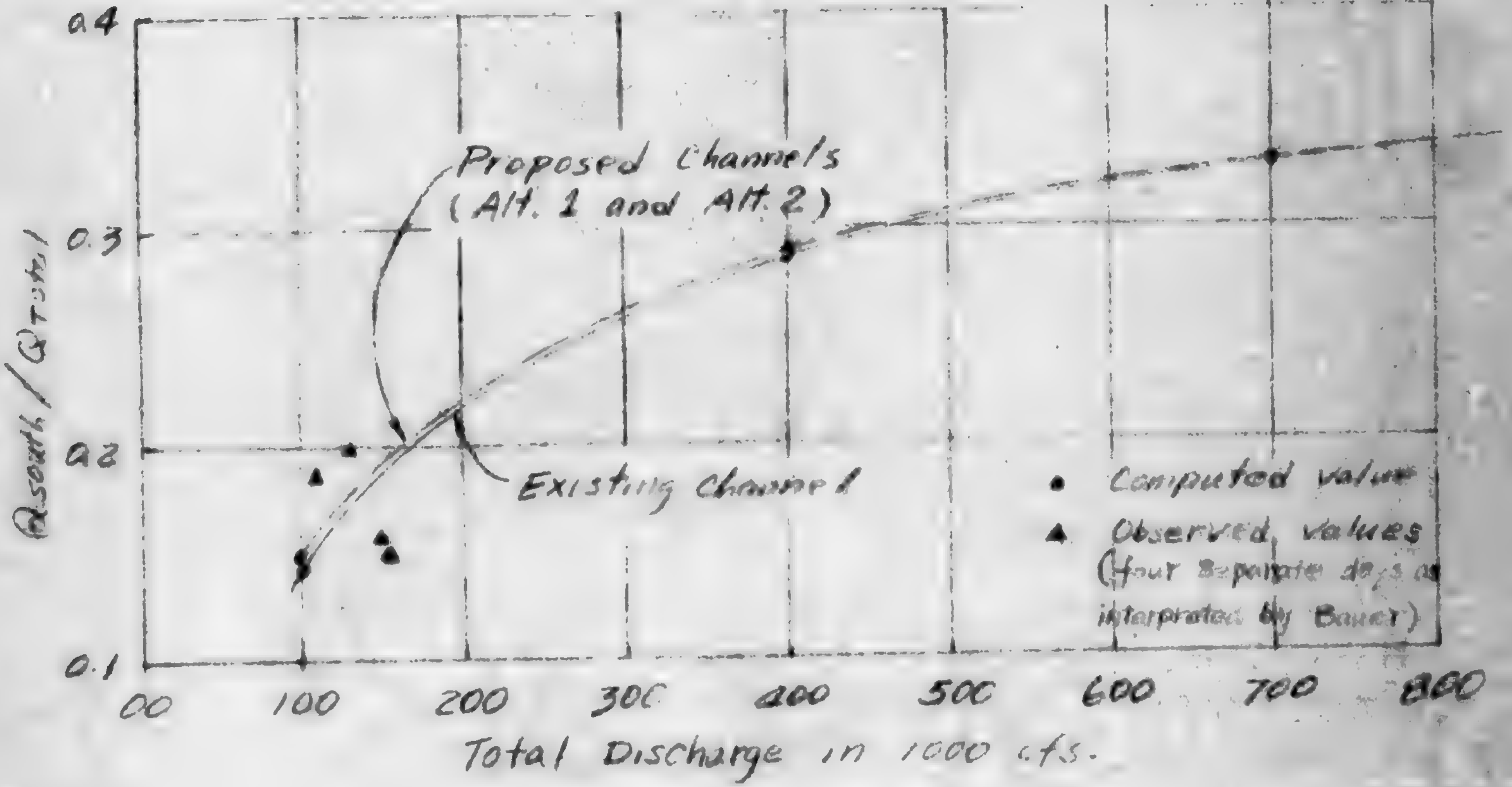
SEDIMENT TRANSPORTATION PROFILES ALTERNATIVE 2

BAUER ENGINEERING INC
BY

CHICAGO, ILLINOIS | FEB 1988 | SHEET OF

EXHIBIT S

| | | |
|---|---|---|
| **BAUER ENGINEERING INC.** CHICAGO | SUBJECT Division of Flow | PROJECT Portland |
| | | FILE No. 6764 |
| | COMPUTED C Y H CHECKED K.H.C. | DATE 2/21/68 PAGE ____ OF ____ PAGES |



| Total Discharge | Qsouth | | Qsouth / Qtotal | |
|---|---|---|---|---|
| | Existing | proposed | Existing | proposed |
| 100,000 | 14,000 cfs | 14,500 cfs | 0.14 | 0.145 |
| 400.000 | 114,000 | 117,000 | 0.285 | 0.293 |
| 700.000 | 233.000 | 233.000 | 0.333 | 0.333 |

EXHIBIT I

| | | |
|---|---|---|
| **BAUER ENGINEERING INC.** CHICAGO | SUBJECT [illegible] Cross Section at sta. [illegible] | PROJECT Portland [illegible] |
| | | FILE NO. 6764 |
| | COMPUTED C. Y. H. CHECKED | DATE 3/12/68 PAGE OF PAGES |

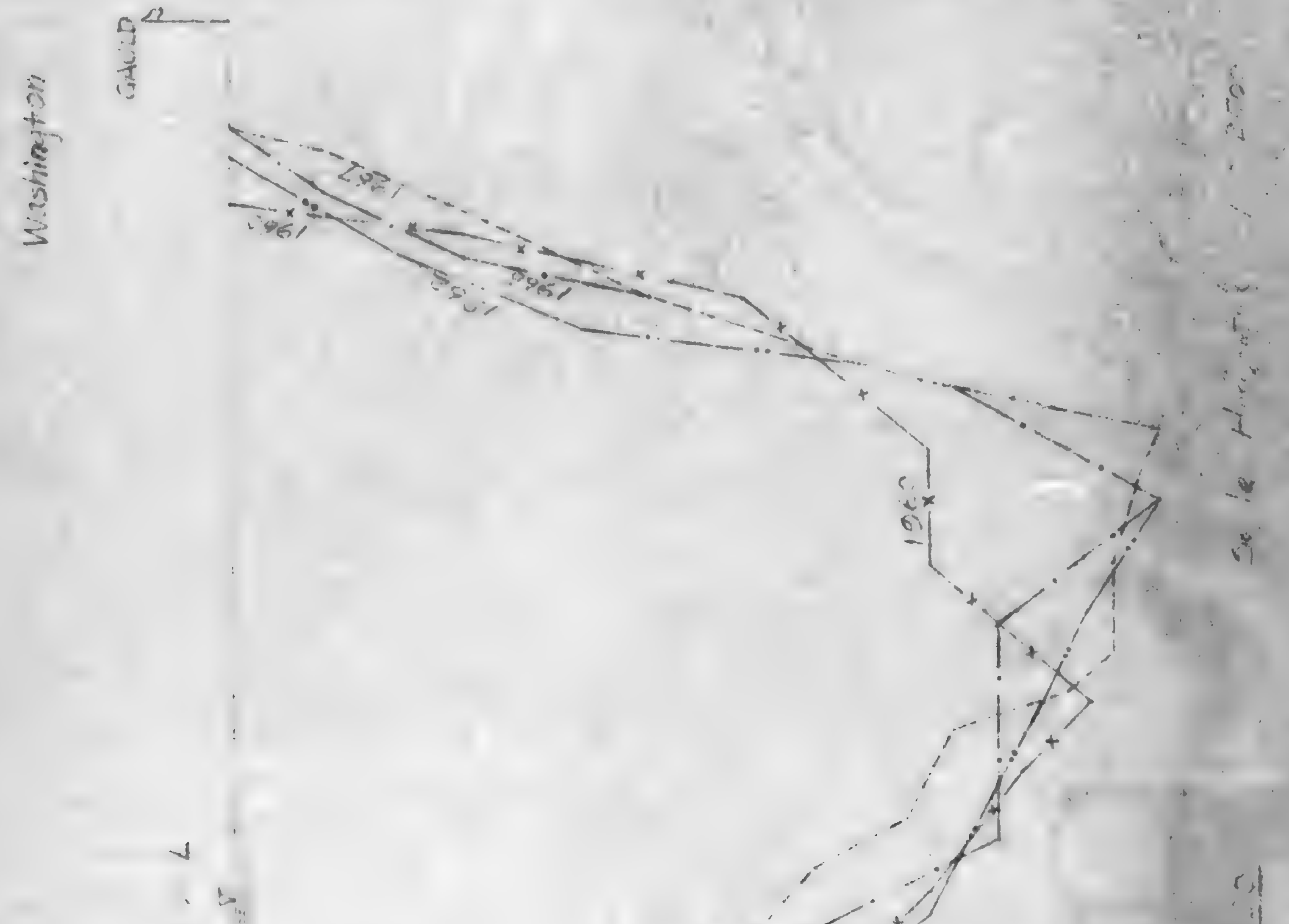


EXHIBIT U

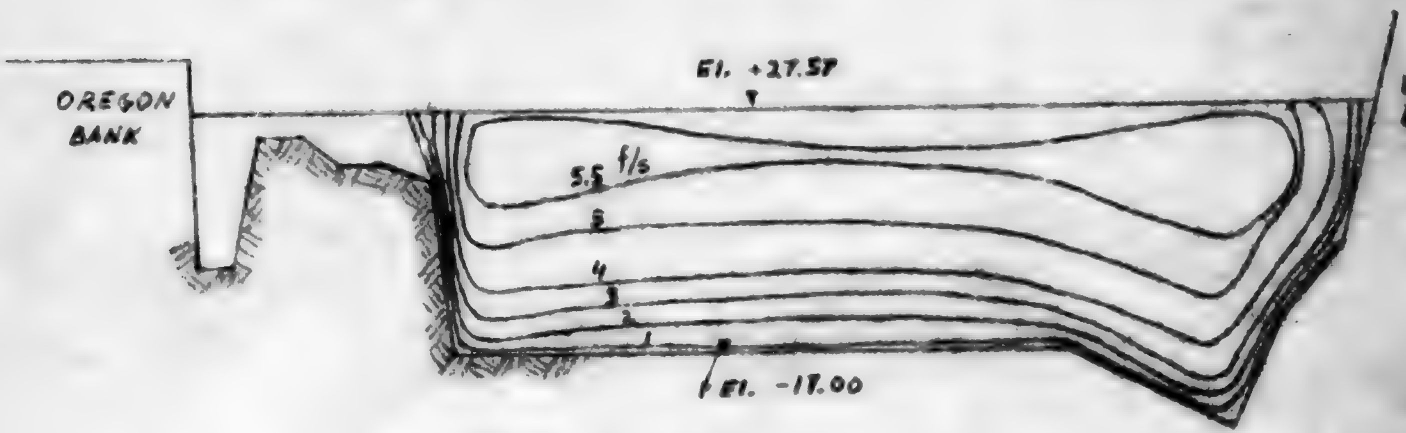
| | | |
|---|---|---|
| **BAUER ENGINEERING INC.** CHICAGO | SUBJECT PLAN PATTERN OF STREAMLINES AND SPIRAL FLOW AT STA. 340 | PROJECT PORTLAND |
| | | FILE NO. 6764 |
| | COMPUTED ALBERTO VAL CHECKED | DATE 4/9/68 PAGE OF PAGES |

Remarks : $Q = 700{,}000$ c.f.s.
$n = 0.025$
$H = 44.57'$
$L = 1{,}200'$ (width of south channel)
$S = 3.8 \times 10^{-5}$
VELOCITIES ARE GIVEN IN FEET/SECOND

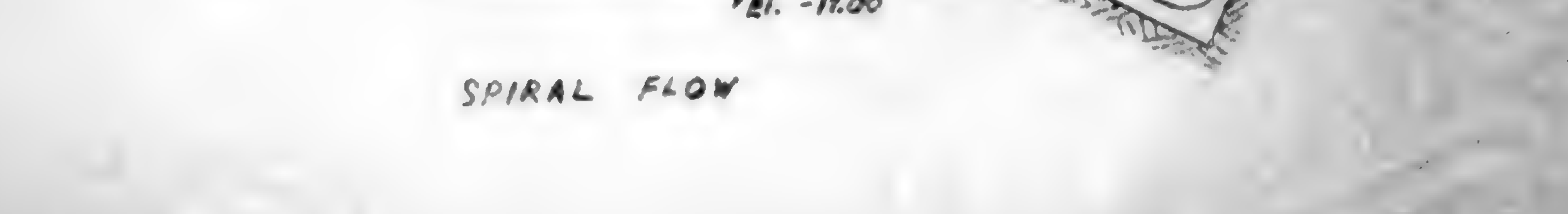
1000'
HOR. SCALE

40'
VERT. SCALE

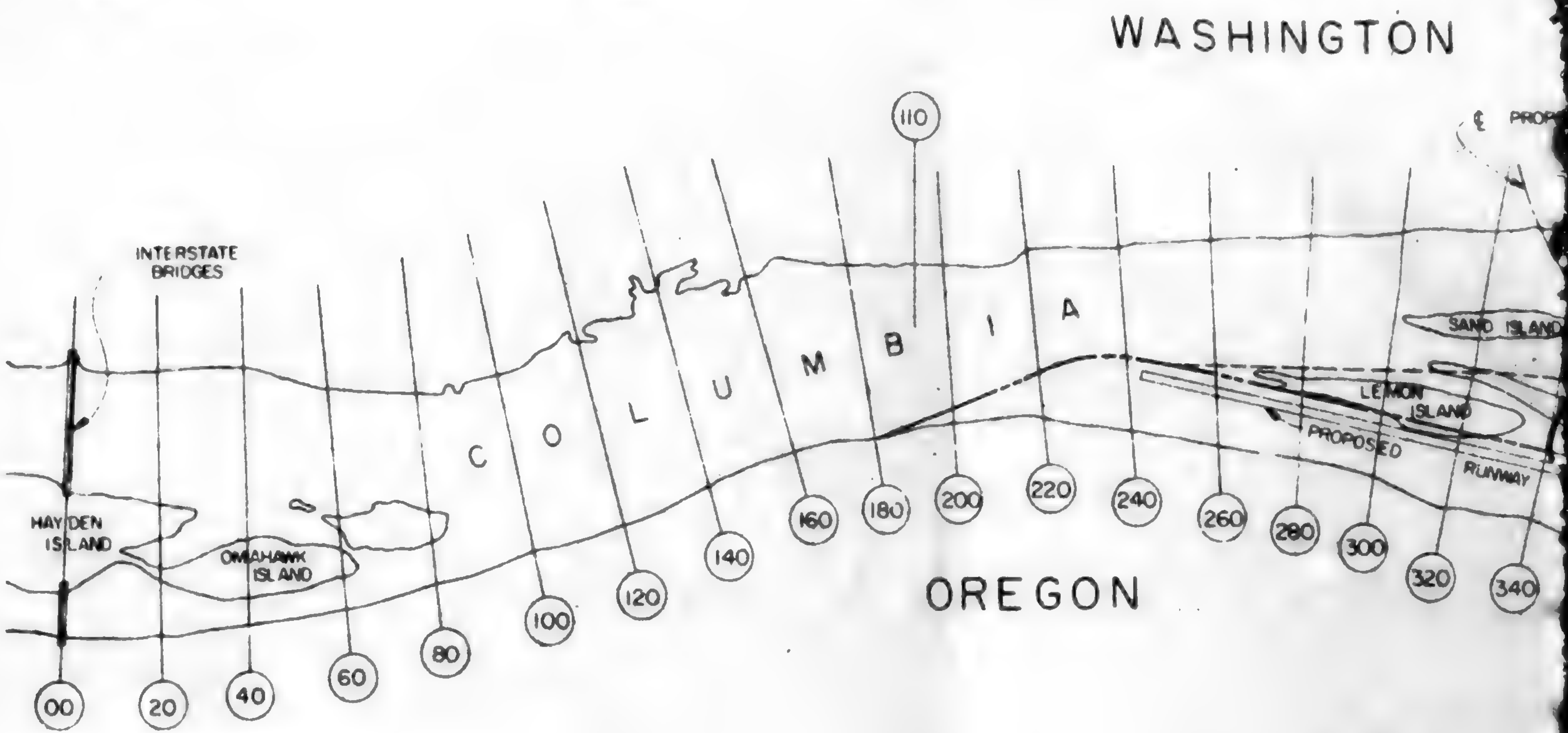
# VELOCITY DISTRIBUTION


El. +27.57
OREGON BANK
WASHINGTON BANK
5.5 f/s
5
4
3
2
1
El. -17.00

MAIN FLOW


El. +27.57
OREGON BANK
WASHINGTON BANK
0.05 f/s
0.02
0.02
0.01
0.1
0.2
El. -17.00

SPIRAL FLOW


WASHINGTON
OREGON
COLUMBIA
INTERSTATE BRIDGES
HAYDEN ISLAND
OMAHAWK ISLAND
SAND ISLAND
LEMON ISLAND
PROPOSED RUNWAY
110
00
20
40
60
80
100
120
140
160
180
200
220
240
260
280
300
320
340

PLAN

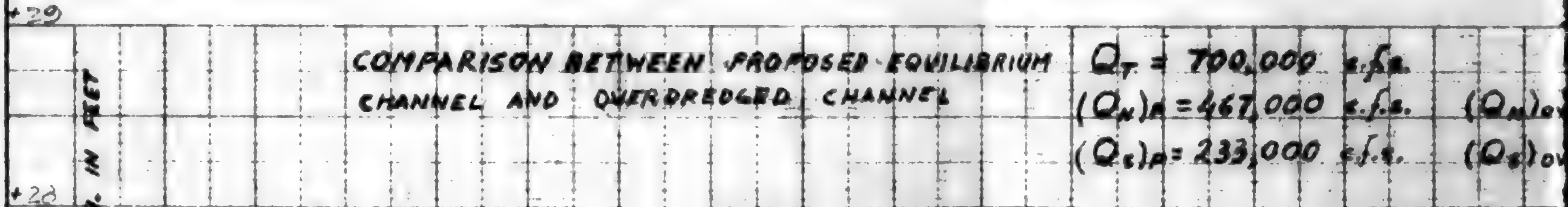
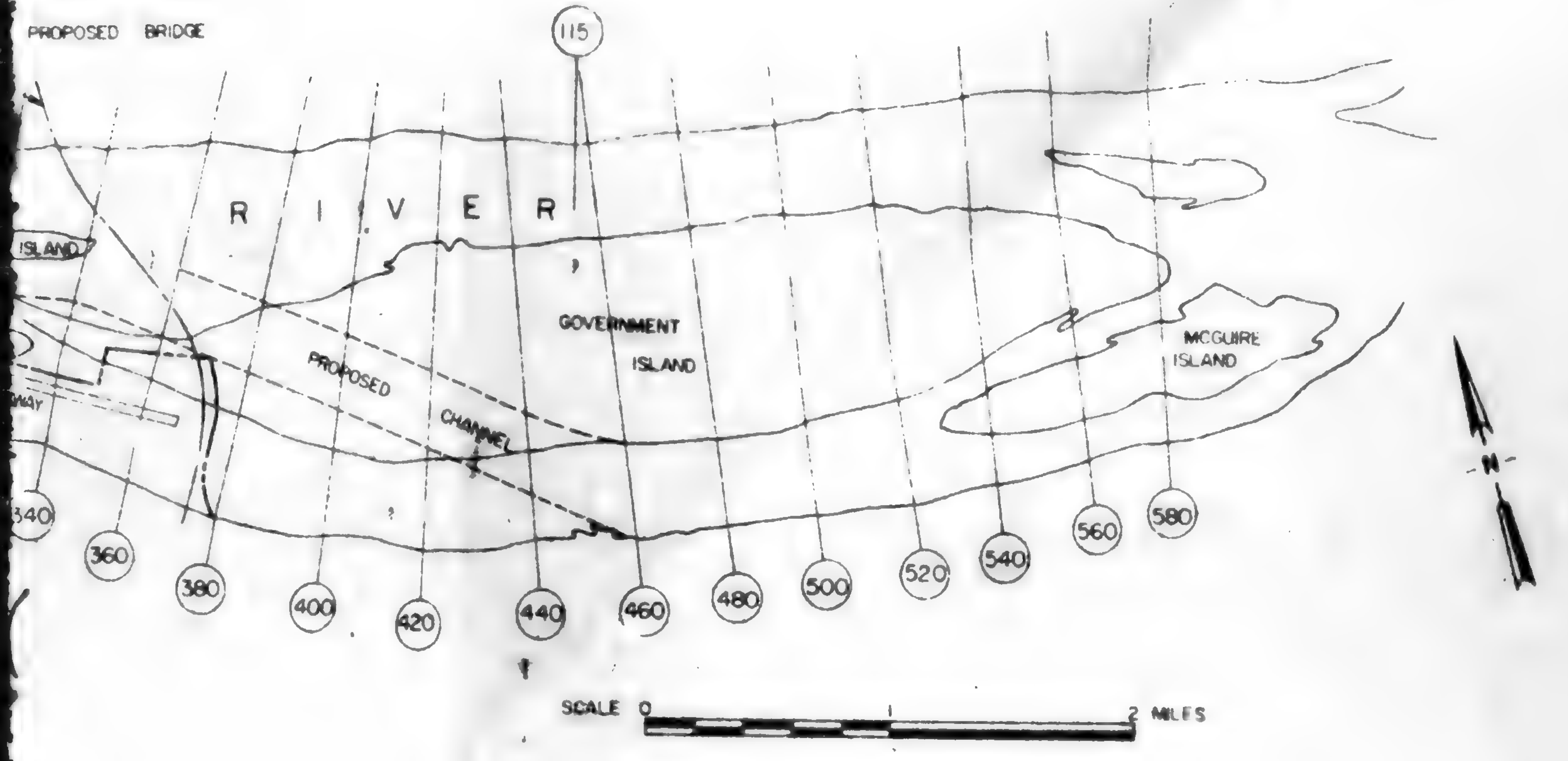
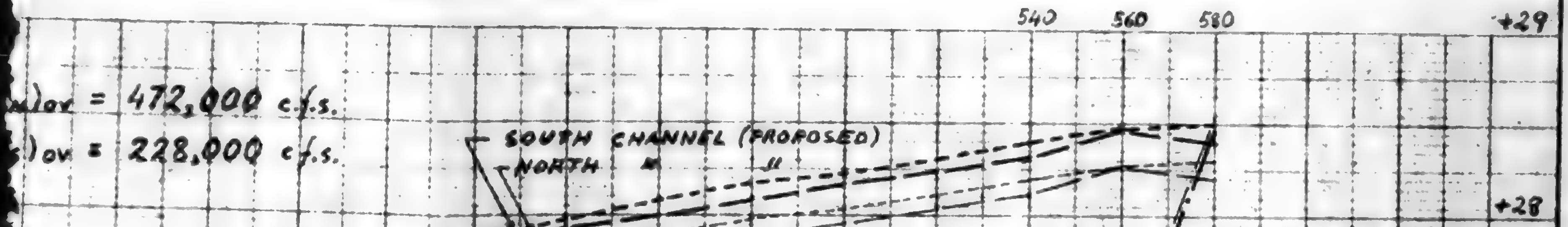

COMPARISON BETWEEN PROPOSED EQUILIBRIUM CHANNEL AND OVERDREDGED CHANNEL
$Q_T$ = 700,000 c.f.s.
$(Q_N)_P$ = 467,000 c.f.s.
$(Q_S)_P$ = 233,000 c.f.s.
$(Q_N)_{OV}$
$(Q_S)_{OV}$
COMBINED CHANNEL (PROPOSED)
COMBINED CHANNEL (OVERDREDGED)
COMBINED CHANNEL (PROPOSED)
COMBINED CHANNEL (OVER-DREDGED)
WATER SURFACE EL. IN FEET
SEDIMENT TRANSPORTATION IN T/DAY
DISTANCE IN 100 FT. FROM INTERSTATE BRIDGES
+29
+28
+27
800
600
400
200
00
20
40
60
80
100
120
140
160
180
200
220
240
260
280
300
320

EXHIBIT V


PROPOSED BRIDGE
115
R I V E R
ISLAND
GOVERNMENT
ISLAND
PROPOSED
CHANNEL
MCGUIRE
ISLAND
N
340
360
380
400
420
440
460
480
500
520
540
560
580
SCALE 0 1 2 MILES



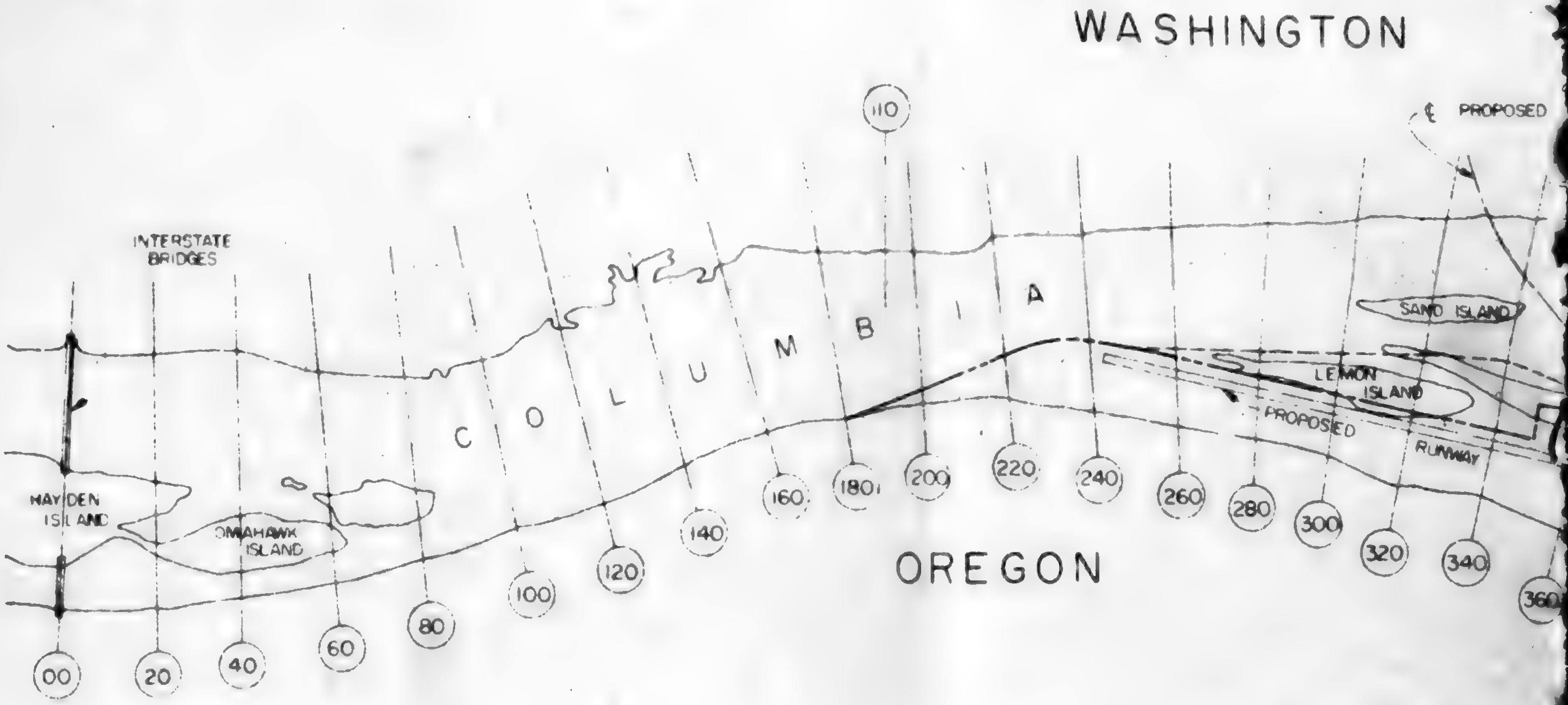
PORT OF PORTLAND
PORTLAND, OREGON

| AIRPORT EXPANSION | HYDRAULIC ANALYSES |
|---|---|

WATER SURFACE AND SEDIMENT TRANSPORTATION PROFILES, OVER DREDGED ALTERNATIVE 1

BAUER ENGINEERING INC.
BY

| CHICAGO, ILLINOIS | FEB 1968 | SHEET OF |
|---|---|---|


WASHINGTON
℄ PROPOSED
INTERSTATE BRIDGES
COLUMBIA
SAND ISLAND
LEMON ISLAND
PROPOSED RUNWAY
HAYDEN ISLAND
TOMAHAWK ISLAND
OREGON
00
20
40
60
80
100
110
120
140
160
180
200
220
240
260
280
300
320
340
360

## PLAN

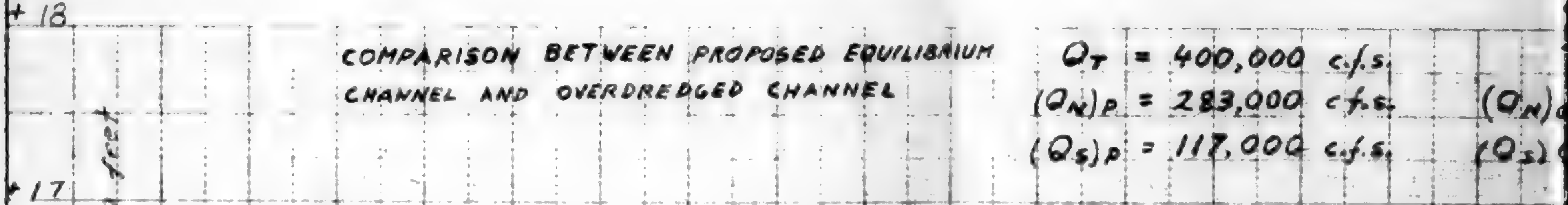
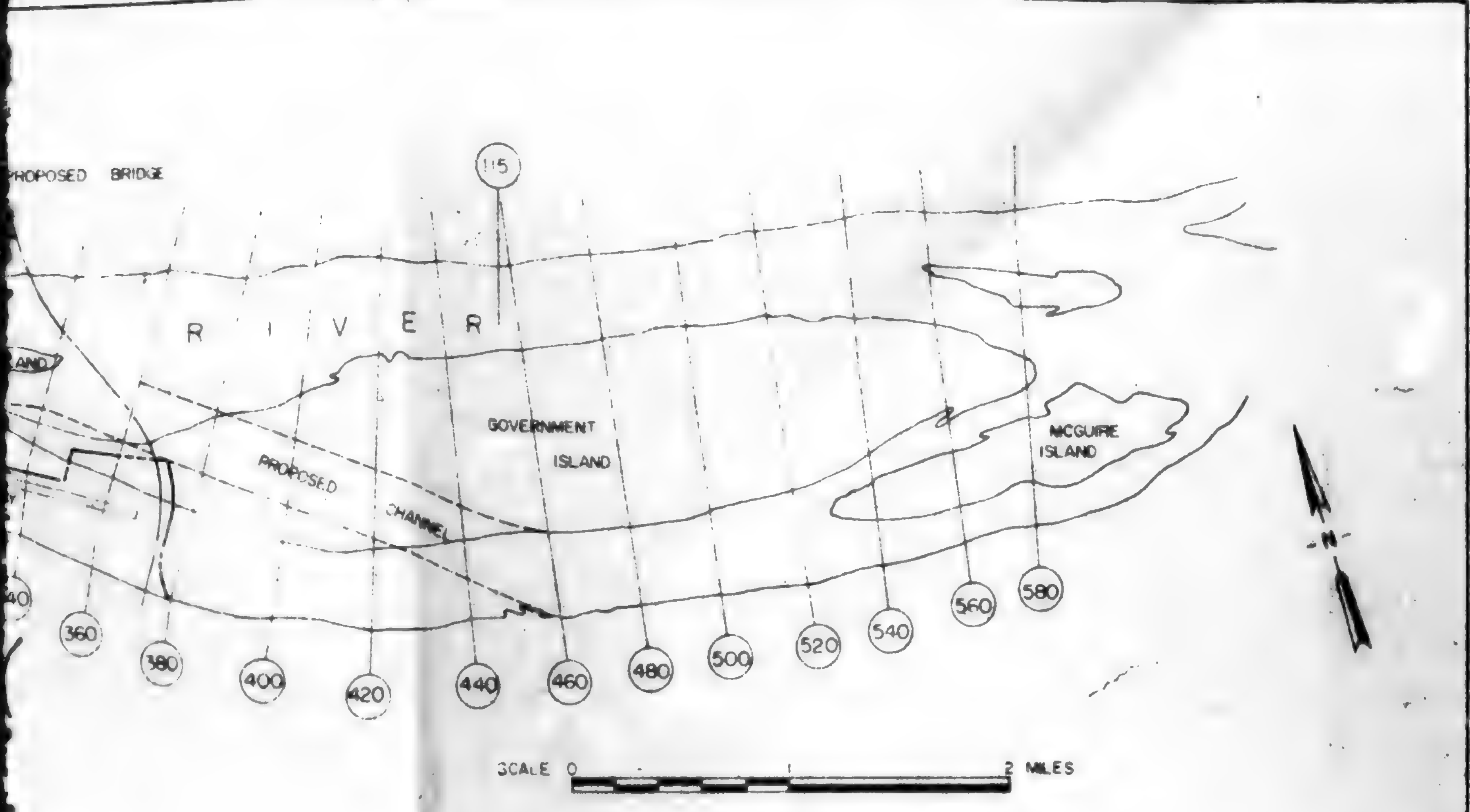
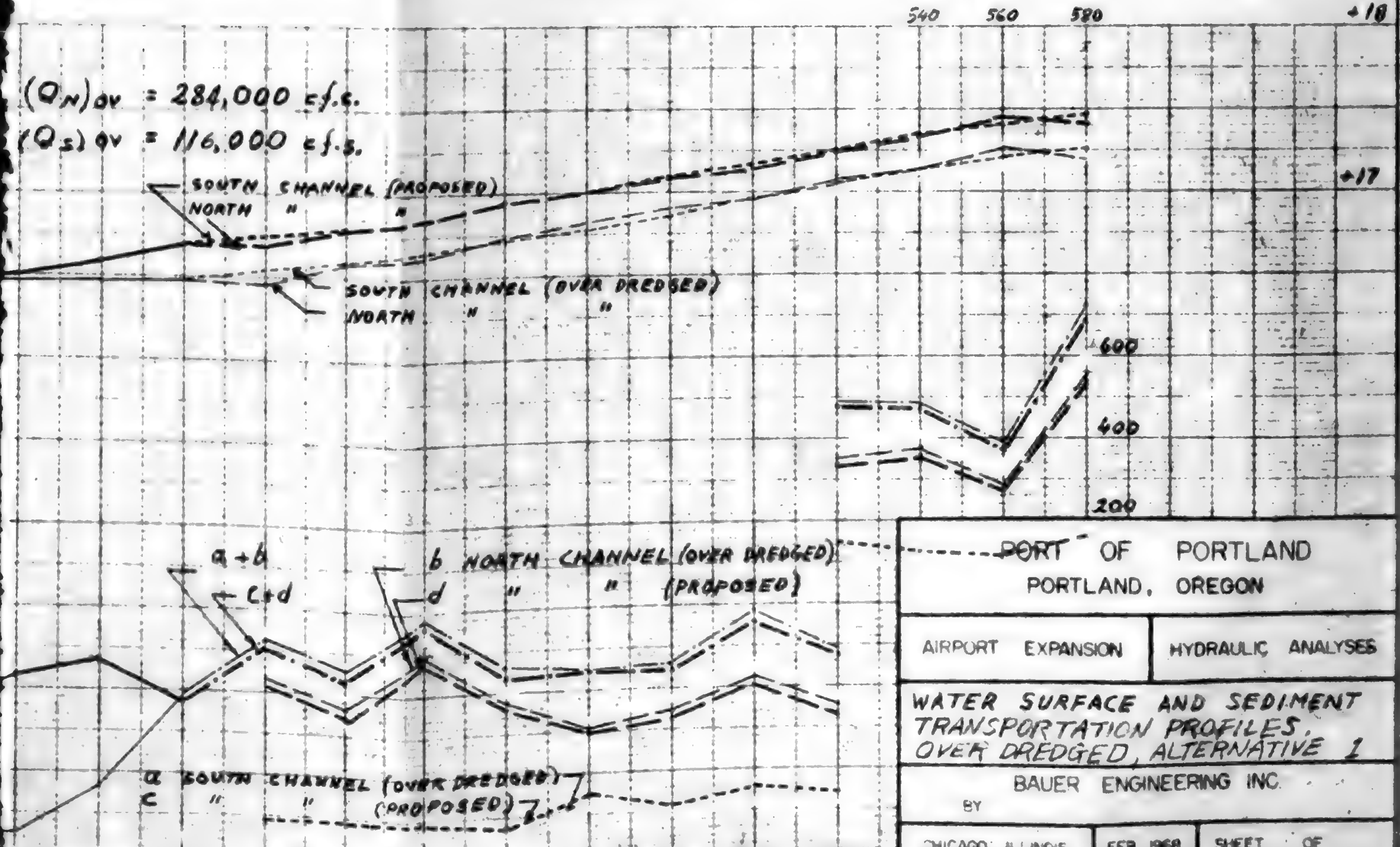

COMPARISON BETWEEN PROPOSED EQUILIBRIUM CHANNEL AND OVERDREDGED CHANNEL
$Q_T$ = 400,000 c.f.s.
$(Q_N)_P$ = 283,000 c.f.s.
$(Q_S)_P$ = 117,000 c.f.s.
$(Q_N)$
$(Q_S)$
Water Surface El. in feet
+18
+17
+16
COMBINED CHANNEL (PROPOSED)
COMBINED CHANNEL (OVER DREDGED)
Sediment Transp. in lbs/sec
600
400
200
0
COMBINED CHANNEL (PROPOSED)
COMBINED CHANNEL (OVER DREDGED)
DISTANCE IN 100 FT. FROM INTERSTATE BRIDGES
00
20
40
60
80
100
120
140
160
180
200
220
240
260
280
300
320

EXHIBIT W


PROPOSED BRIDGE
115
R I V E R
GOVERNMENT ISLAND
MCGUIRE ISLAND
PROPOSED CHANNEL
N
40
360
380
400
420
440
460
480
500
520
540
560
580
SCALE 0 1 2 MILES



PORT OF PORTLAND
PORTLAND, OREGON

| AIRPORT EXPANSION | HYDRAULIC ANALYSES |
|---|---|

WATER SURFACE AND SEDIMENT TRANSPORTATION PROFILES, OVER DREDGED, ALTERNATIVE 1

BY BAUER ENGINEERING INC.

| CHICAGO, ILLINOIS | FEB 1968 | SHEET OF |
|---|---|---|

8725

DEPARTMENT OF THE ARMY
PORTLAND DISTRICT, CORPS OF ENGINEERS
628 PITTOCK BLOCK
PORTLAND, OREGON 97208

NPPND-WM-P
1507-27(Columbia R.-Dredging)-166.

10 May 1968

## PUBLIC NOTICE 68-47
## COLUMBIA RIVER AT PORTLAND INTERNATIONAL AIRPORT
## DREDGING & FILLING

The Port of Portland, P. O. Box 3529, Portland, Oregon 97208, has applied for a Department of the Army, Corps of Engineers, permit to conduct dredging and filling operations in the Columbia River in the vicinity of Portland International Airport between approximate rivermiles 110 and 112. The work proposed is in conjunction with an airport expansion program for the purpose of providing area for construction of an additional runway. The program includes dredging of about 33 million cubic yards of material for placement in the fill area. The Port of Portland proposes, dependent on the approval of the permit application, to start dredging in February 1969 and to complete by the end of 1970.

A map showing the area to be dredged, the area to be filled, and the location of proposed runway is attached to this notice.

Interested parties are requested to direct any questions they may have on the project to Mr. A. J. Heineman, Assistant General Manager, Port of Portland. Complete sets of the Port of Portland drawings and hydraulic studies are available for inspection in his office in the Lindsay Building, 710 S. W. 2nd Avenue, Portland, Oregon, telephone (503)224-4260. Duplicate sets of drawings and studies are available for inspection in Room 102, Pittock Block.

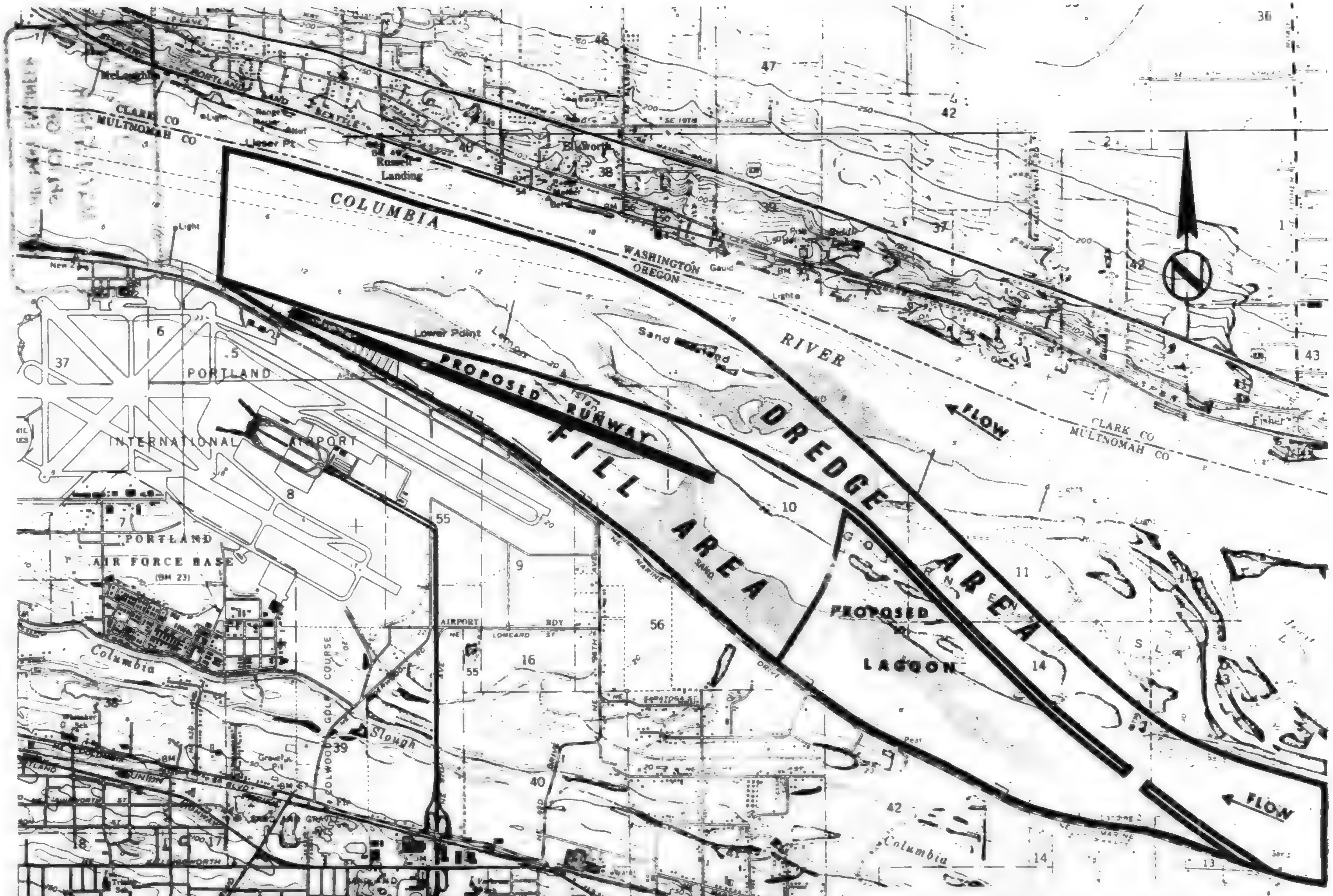
PUBLIC HEARING. A public hearing on this permit application has not yet been scheduled. In the interest of affording all concerned the opportunity to comment during preliminary engineering analysis of the proposal, comments are solicited by 10 June 1968. Determination of the necessity for a public hearing will be based on the general response to this notice and the nature of comments received. If it is found necessary in the public interest to hold a hearing, a second public notice will be issued and all known interested parties informed of the date, time, and place, and other pertinent details, allowing ample time for all concerned to schedule their attendance.

The determination as to whether a permit will be issued will be based on an evaluation of all relevant factors, including the effect of the proposed work on navigation, flood control, fish and wildlife conservation, pollution, and the general public interest. Comments on these factors will be accepted and considered in determining whether it would be in the best public interest to grant the permit as requested.

Interested parties are requested to submit in writing any comments or objections they may have to the proposed work so as to reach this office not later than 10 June 1968.

ROBERT L. BANGERT
Colonel, Corps of Engineers
District Engineer

RECEIVED
MAY 15 1968
OFFICE OF
STATE HIGHWAY ENGINEER


COLUMBIA
RIVER
FLOW
FLOW
DREDGE AREA
FILL AREA
PROPOSED RUNWAY
PROPOSED LAGOON
WASHINGTON
OREGON
CLARK CO
MULTNOMAH CO
Sand Island
Lower Point
Russell Landing
PORTLAND INTERNATIONAL AIRPORT
PORTLAND AIR FORCE BASE
(BM 23)
Columbia
Slough
COLWOOD GOLF COURSE
AIRPORT
Parkrose
Post Office
SCALE : 0 2000' 3000'

THE PORT OF PORTLAND
PROPOSED DREDGING IN COL. RIVER
SCALE : DATE: MAY 3, 1968

890

9555

COMMISSIONERS
GLENN L. JACKSON, CHAIRMAN
MEDFORD
~~[illegible]~~
FRED W. HILL, MEMBER
Pendleton
Thaddeus B. Bruno,
Member, Portland

STATE OF OREGON
STATE HIGHWAY DEPARTMENT
SALEM 97310

May 8, 1968

bc Forrest Cooper
R. L. Porter
F. B. Klaboe
Victor D. Wolfe
Ivan Merchant
A. E. Johnson

Mr. J. E. Shields, Assistant Chief
Aids to Navigation Branch
13th Coast Guard District
618 Second Avenue
Seattle, Washington 98104

Dear Sir:

Under date of January 11, 1967 the State Highway Department of the State of Oregon at Salem, Oregon made application to the District Engineer, Corps of Engineers, United States Army, for approval by the Chief of Engineers and the Secretary of the Army of plans of a bridge to be constructed across the Columbia River immediately east of the town of Vancouver, Washington and the easterly part of Portland, Oregon, 112.7 miles above the mouth of the waterway. Original tracings and four prints of each were enclosed therewith.

The application was made under legal authority found in the General Bridge Act of 1946 and enclosed was a copy of the authorization from the Secretary of the State Highway Commission, including excerpts from the Highway Commission meeting authorizing the construction.

On May 25, 1967 a hearing was held in the Auditorium of the Department of the Interior, Bonneville Power Administration Building in Portland, Oregon.

Very shortly thereafter and prior to the time that any ruling had been issued on the application, the Port of Portland, acting in the interest of air transportation, proposed a revision of the runways of the Portland International Airport. In a spirit of cooperation, the Highway Department did not request a ruling on the application.

RECEIVED
OREGON STATE HIGHWAY DEPT.
BRIDGE DIVISION
AM MAY 10 1968 PM
7,8,9,10,11,12,1,2,3,4,5,6

The Port of Portland's plans have now become firm. There is agreement between the State Highway Commission and the Port of Portland as to the location of the proposed facility with respect to the improvement of the airport.

The location of the bridge on the Washington shore is identical with that in the original application. The location over the main channel is upstream only a few feet. The southerly end of the bridge has been swung to the east and shortened in accord with the development plan of the Port of Portland.

We would request, therefore, that the location map and clearance data attached be substituted for those submitted with our application under date of January 11, 1967.

In addition to the alignment change noted above, clearance changes have been made on Sheet 3 as follows:

1. A minimal clearance distance of 152 feet above mean low water datum at the south edge of the main 300-foot navigation channel has been provided for.

2. The clearance above the same datum is 157 feet at the centerline of the channel and 154 feet at the north edge of the main navigation channel.

3. The south channel will be shifted northward under the Port of Portland's improvement program.

4. A clear opening of 120 feet (the same as in the original application) has been provided but the clearance has been increased to 69 feet at the south edge of the secondary channel.

In submitting this revised data to be substituted for that attached to our original application, we reiterate that the changes have been made in close cooperation with the Port of Portland development and we request approval to proceed with the proposed construction.

Very truly yours,

Forrest Cooper
State Highway Engineer

By ORIGINAL SIGNED
TOM EDWARDS

Tom Edwards
Assistant State Highway Engineer

Attachments

TE:ja

8905

RECEIVED
FORM E-30 10-65
MAY 16 1968

FOR FILE

| |
|---|
| Corel |
| n/a |
| EMF |

# OREGON STATE HIGHWAY DEPARTMENT

INTER-DEPARTMENT CORRESPONDENCE

May 3, 1968
Salem, Oregon

**SUBJECT:** Dames & Moore Soils Investigation
Columbia River Side
Portland International Airport

Library

Enc R

To: T. C. Roake
Assistant Bridge Engineer

OFFICE

6544

A review of the March 29 report to the Port of Portland by Dames & Moore as submitted by Irving E. Olsen has been made and engenders the following comments.

1. As the nature of the report is "preliminary" and was to provide "general information for site development," the report presents data only generally of value to the Oregon State Highway Department in that it shows deep compressible soils under theproposed highway area.
2. Borings 8, 9, 29, 30 and 35 present data pertaining to soils within an area covered by OSHD planning to depths ranging from minus 32 (-32) to minus 60 (-60).

Borings 8 and 9, South Shore, Main River Channel - The shallow boring indicates a fine to coarse sand of moderate density (±88 to ±93 PCF dry density) subject to erosion should, (1) the river current be increased more than 25% because of channel restriction two miles downstream, and (2) the impact of current flow of a proposed new south channel be increased.

NOTED
TOM EDWARDS

Borings 29, 30 & 35, South Channel to be Obliterated by Airport Fill - These borings are incomplete for roadway foundation design purposes and indicate weak foundation materials.

Boring 29 to elevation minus 58 (-58) suggests a 22 foot layer of compressible soil below elevation minus 36 (-36).

Boring 30 to elevation minus 46 (-46) indicates a compressible material of ML gray fine sandy clayey silt with some organic matter of undetermined depth below elevation minus 41 (-41). The boring did not penetrate the material.

Boring 35 to elevation minus 60 (-60) shows a 25 foot depth of SM-ML gray silty fine sand with layers of clayey silt and fine sandy silt of loose density ±64 P.C.F. and low shear strength - 100 pounds per square foot at elevation minus 16 (-16). A 38 foot hydraulically placed fill is indicated at this location, which will impose a minimum of 3800 pounds per square foot load.

Marked consolidation of foundation material under any proposed highway embankment to be placed across South Channel area at this point should be anticipated, and remedial measures incorporated in any roadway design.

3. These "preliminary" foundation data definitely point to the need of a very careful foundation investigation and planning to compensate for a roadway settlement of up to four feet in the South Channel crossing area.

W. C. Hill
Wm. C. Hill
Foundation Specialist

WCH:jf

8705

**COMMISSION**
DENNIS J. LINDSAY
President
LEE E. CALDWELL
Vice President
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Secretary
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LEW S. RUSSELL
HOWARD B. SOMERS
DONALD G. DRAKE
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JOHN S. BRANDIS

GEORGE M. BALDWIN
General Manager

THE PORT OF PORTLAND

BOX 3529 PORTLAND, OREGON 97208 Telephone (503) 224-4260
Lindsay Building 710 S.W. 2nd Avenue

7105

April 29, 1968

Mr. Tom Edwards
Assistant State Highway Engineer
Oregon State Highway Department
State Highway Building
Salem, Oregon 97310

Dear Mr. Edwards:

Subject: Soils Investigations in the Vicinity of Portland International Airport

Enclosed we are sending a copy of the March 29, 1968 Dames & Moore Preliminary Soils Investigation, Proposed Airport Expansion, Portland International Airport report for your information.

Plate No. 2 shows the location of seven borings in Government Island which were made during a previous investigation. A copy of this report was sent to you early this year.

Please call if there are any questions regarding this report.

Very truly yours,

THE PORT OF PORTLAND

Robert F. Dow
ROBERT F. DOW
Chief Engineer

RFD:bl
Enclosure

cc: F. B. Klaboe
A. E. Johnson

Roake / Discuss

NOTED
T. C. ROAKE

RECEIVED
APR 30 1968
OFFICE OF
STATE HIGHWAY ENGINEER

*Major Continuing Projects:*
**AVIATION**—PORTLAND INTERNATIONAL AIRPORT, PORTLAND-HILLSBORO AIRPORT, PORTLAND-TROUTDALE AIRPORT, AND SWAN ISLAND HELIPORT
**LAND DEVELOPMENT**—SWAN ISLAND INDUSTRIAL PARK, RIVERGATE INDUSTRIAL DISTRICT, AND PORT CENTER
**MARINE**—PIPELINE DREDGE OREGON, STERNWHEEL STEAMER PORTLAND, AND SWAN ISLAND SHIP REPAIR YARD

8905

8

RECEIVED
APR [illegible] 1968

FORM E-30 50M 10-65

FOR FILING

**OREGON STATE HIGHWAY DEPARTMENT**
INTER-DEPARTMENT CORRESPONDENCE
Salem, Oregon
April 22, 1968

SUBJECT:

To: MEMO TO THE FILE

The matter of design of the Columbia River Bridge on I-205 was given consideration by the consultant selection committee. Mr. Edwards reported a thorough study of the capabilities of the current design team in the Bridge Division, basically to the effect that they could quite handily meet all design needs for the system foreseeable in the next three years with the current crew of 50 designers, with one exception. The exception would be the Columbia River Bridge crossing on I-205 or the completion of the East Marquam Interchange. One of these would require use of a consultant.

By reason of the fact that considerable amount of design work was of necessity done on the East Marquam Bridge Interchange during the preparation of the part now constructed and the right-of-way dealings, it is believed that a substantial amount of money would be saved if the balance of the East Marquam Interchange was done "in house".

Therefore it appears appropriate to retain a consulting firm to design the Columbia River crossing of I-205.

R.L.P.

R. L. Porter
Deputy State Highway Engineer

cc Bureau of Public Roads

bc Forrest Cooper
Tom Edwards
F. B. Klaboe
Victor D. Wolfe
I. D. Merchant

TE:ja ms

8905
RECEIVED
APR 22 1968
FOR FILING

yellow in
Comp.
Projects
Consultants

April 19, 1968

Mr. John W. Broome
Broome, Selig & Oringdulph
Post Office Box 15120
Portland, Oregon 97230

Dear Mr. Broome:

Thank you for your April 16 letter addressed to Mr. Glenn L. Jackson, Chairman of the State Highway Commission, which concerns the proposed Columbia River Bridge on Interstate 205. Mr. Jackson referred your letter to this office for reply.

The next Commission meeting is on April 23 and the agenda is full; however, if you would care to discuss this matter with them at the following meeting, it probably will be in late May or early June. Please let us know and we will see that time is reserved for you.

On the Fremont Bridge case, the Commission closely followed the suggestion in your letter; that is, a consultant of international reputation, together with a well-known architect, was retained to prepare preliminary designs and estimates of several possibilities. After these were presented to the City of Portland and were studied by the Planning Commission, the Art Commission, and others, the Highway Commission was requested to construct a bridge that would be patterned after the Port Mann structure in British Columbia. The State's consultant was commissioned to prepare detailed designs and specifications. This work is now under way.

As to the Columbia River crossing, it appears that the Highway Department does not have sufficient staff to design this structure. It is contemplated that a reputable consultant will be selected to do this work, and you may be sure that the Highway Commission will do everything possible to provide a bridge that will be a credit to the states of Oregon and Washington and to the Interstate system.

While it does appear that some type of deck girder structure may be indicated, no decision as to type has been made and probably will not be until the consultant thoroughly studies the crossing problem.

Very truly yours,

Forrest Cooper
State Highway Engineer

By

R. L. Porter
Deputy State Highway Engineer

RLP:ms

cc Forrest Cooper
Tom Edwards
F. B. Klaboe
Victor D. Wolfe

**BROOME, SELIG & ORINGDULPH ARCHITECTS, A.I.A.**
**R. B. RESSEGER PROFESSIONAL ENGINEER**
227 NORTHEAST 122 AVENUE • P. O. BOX 16130 • PORTLAND, OREGON 97230 • 252-0275

15 April 1968

Mr. Glenn Jackson, Chairman
State Highway Commission
Salem, Oregon

Dear Mr. Jackson:

At a recent presentation in Portland regarding the new Fremont Bridge, the subject of the I-205 Columbia River Bridge was discussed. Many of those attending that meeting of the Oregon Building Congress expressed concern over the design of the proposed bridge. The concern still exists.

This bridge will be a major visual force on the Columbia and therefore should command the talents of the most highly qualified designers available. Recently, teams of design consultants from related professions have been of assistance to highway engineers. I have particularly in mind the work of the multi-disciplinary design concept teams working in Baltimore and Brooklyn. These teams include engineers, architects, economists, sociologists, planners, landscape architects and acoustical experts.

I recognize that the design problems here are not of the complexity of the Fremont Bridge and that a simple deck span is being proposed. This does not automatically mean that the design will be a thing of beauty, and therefore, I am requesting your consideration of the employment of a design team of recognized experts. If funds are insufficient for this (and I can hardly imagine that they are) then I would suggest at the very least the employment of a design review team of expert engineers and architects to assist the local state design engineers. I am not questioning the structural design capabilities of the state engineers, but the problems arising over the design of the Fremont and Marquam Bridges could be avoided by the early selection of consultants who are recognized for their imagination and creativity in bridge and building design.

As a member of Governor McCall's Committee for a Livable Oregon, I am particularly interested in the quality of design of the state's buildings, highways and bridges, and in the preservation of, and respect for, Oregon's landscape. In the case of the I-205 Columbia River Bridge, I am concerned about the appearance of the bridge and its relationship to Government Island's ecology should The Port of Portland's proposed land fill project be abandoned. I am wondering if I might be given the opportunity to discuss this subject at the next meeting of the Highway Commission.

Respectfully yours,

John W. Broome

John W. Broome

RECEIVED
APR 18 [illegible]
[illegible]
STATE HIGHWAY [illegible]

8905

Form FH-121 (4-67)

UNITED STATES GOVERNMENT

# *Memorandum*

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
BUREAU OF PUBLIC ROADS
477 Cottage St. NE. - Salem OR 97301

DATE: April 17, 1968

In reply refer to: 08-35.1

TO : Mr. Forrest Cooper, State Highway Engineer
Salem, Oregon

FROM : R. E. Simpson, Division Engineer
Salem, Oregon

SUBJECT: Interstate Route 205 -
Columbia River Crossing

As discussed with you, Public Roads has reviewed the alignment of Interstate Route 205 north of the Parkrose area. It was generally agreed that the alignment in the Maywood area would remain as presented in the public hearing.

In order to resolve the location across the Columbia River it is suggested that the Port of Portland be contacted and urged to complete its feasibility report at an early date. Upon receipt of such report the alignment can be finalized on this remaining portion.

NOTED
F. B. KLABOE

4-19-68

REFERRED TO
Morgan
State Hwy. Engr
Info.

copy to
Young

RECEIVED
APR 18 1968
OFFICE OF
STATE HIGHWAY ENGINEER

RECEIVED
A[illegible] 8 [illegible]
OFFICE [illegible] ENGINEERING

BUY U.S. SAVINGS BONDS REGULARLY ON THE PAYROLL SAVINGS PLAN

8905

J Pa

April 12, 1968

6265

Mr. R. E. Simpson
Division Engineer
Bureau of Public Roads
477 Cottage Street, N. E.
Salem, Oregon 97301

Re: Your File 08-35.6

Dear Sir:

Your memorandum of December 14, 1967 requested a status report on permits for crossing of navigable streams on the Interstate System.

1. The crossing of the Columbia River on Interstate I-82 is pending, awaiting a final route selection.

2. A permit for the construction of the Columbia River Bridge on I-205 has been submitted to the U.S. Coast Guard. However, the matter is being held in abeyance pending final decision as to the revision of the airport runways at the Portland International Airport. There has been close liaison among the Coast Guard, the Port, and the Highway Department on this matter. A revised application will be submitted when it can be finalized.

3. The reconstruction of the Oregon Slough Viaduct on Interstate 5 to Interstate standards will require a navigation permit. This project is under intensive study by the Highway Department as to final geometry, method of handling traffic during construction, et cetera, and it is hoped that a permit may be applied for by the middle of this year. It might be mentioned here that the State intends to request a revision from previous navigation permits, which required the State to build a lift span upon showing of necessity, to a fixed span.

The three locations mentioned above will complete the Interstate System in Oregon as it is now contemplated, insofar as crossing of navigable streams is concerned.

Very truly yours,

Forrest Cooper
State Highway Engineer

By

Tom Edwards

bc Forrest Cooper
R. L. Porter
Victor D. Wolfe
Ivan Merchant
L. H. Young (enc.)

Tom E   BPR says they have never recd reply to attached 12/14/67 memo - ~~Can~~ Located orig in Secty file for Tualatin Rvrs-E Port Freeway but no letter reply to BPR Copy of our rough of 12/21/67 is attached.

The 12/14/67 came up on your assign 6265, dated 12/15/67

Form FH-121 (4-67)

UNITED STATES GOVERNMENT

*Memorandum*

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
BUREAU OF PUBLIC ROADS
477 Cottage St. NE. - Salem OR 97301

DATE: December 14, 1967

In reply refer to: 08-35.6

TO : Mr. Forrest Cooper, State Highway Engineer
Salem, Oregon
Attention: Mr. Tom Edwards

FROM : A. W. Parsons, Division Engineer, by R. H. Tokerud, Div Bridge Engr
Salem, Oregon

RHT

SUBJECT: Interstate System Crossings of Navigable Streams for Which Permits Have not Been Received

Last year our Washington, D.C. office stressed the desirability of making application for all navigable stream crossings on the Interstate System by September 30, 1967. At that time, Oregon did not anticipate any difficulty in meeting this deadline, with the exception of the I-82 crossing of the Columbia River which has been delayed pending final route selection.

To bring our tabulation of permits up to date, please report the current status of all contemplated Interstate crossings showing applications submitted for which permits have not been granted, applications to be submitted and dates of applying contemplated by the State, and current cause of delay. This information is needed to reply to an inquiry by Commander Hal Olson, Navigation Branch, U.S. Coast Guard.

ION
AM DEC 13 1967 PM
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1967

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Gen Files

Moulquet
Eldold

BUY U.S. SAVINGS BONDS REGULARLY ON THE PAYROLL SAVINGS PLAN

5105

April 4, 1968

Columbia River Towboat Association
% Mr. Lyle Ritter
Western Transportation Company
550 N. W. Front Avenue
Portland, Oregon 97204

Dear Lyle:

Thank you for your courtesy in arranging my presentation regarding our airport expansion at the CRTA luncheon. As promised, I have enclosed a map showing the preliminary layout of the proposed south channel. The Highway Department has informed us that the clearances on the main span would be the same as in the previous plan (400' x 152'), and the south channel clearances would be 120' x 69'. Horizontal clearances are measured at right angles to the channel and vertical clearances from Columbia River Datum (low water).

As I mentioned before, our present construction plan would result in a closure of the downstream end of the south channel for up to nine months. Note however, that during that period you would have essentially slack water through the upstream entrance to the south channel.

I have detailed maps and plans on file in my office, and I hope any of your members wishing to discuss this further will contact me.

Very truly yours,

THE PORT OF PORTLAND

ORIGINAL SIGNED BY
OGDEN BEEMAN

OGDEN BEEMAN, Manager
Marine Department

NOTED
TOM EDWARDS

OB:jm

Encl:

cc: Mirene Company
Willamette Tug & Barge Company
Oregon State Highway Department, Attn: Tom Edwards

bcc: A. J. Heineman
W. G. Proctor

APR - 5 1968
OFFICE OF
STATE HIGHWAY ENGINEER

8105

RECEIVED

FORM E-30 50M 10-65

**OREGON STATE HIGHWAY DEPARTMENT**

INTER-DEPARTMENT CORRESPONDENCE

Salem, Oregon
April 2, 1968

SUBJECT: Meeting with Port of Portland
Portland Airport-I-205

To: MEMO TO FILE

On this date, R. L. Porter and I held a meeting with George Baldwin and two members of his staff. The Port people explained their present position as follows:

Due to objections of the City of Vancouver, the Port was proposing to reposition the north runway so that the approaches would not involve the city of Vancouver. This also made it necessary to reposition the southerly runway. They gave us Lambert coordinates of a point on the center line of the new runway at its easterly end and the course of the runways. Mr. Porter has this information.

Discussion brought out that this change did not interfere with the present proposed plan for the Columbia River bridge. The change did provide a small amount of freeboard, 11 feet, in the approach pattern.

They stated that they were, in general, at peace with all the various agencies involved in the airport proposal, but it appeared that there are many details yet to be worked out.

They stated that they will hold a Port meeting the week of April 15, at which time it was expected that the Port would approve the entire proposal. A public hearing would then be held, the date of which has not been set.

They told us that they were studying plans for a satellite airport either in the St. Paul area or easterly of Canby-Aurora. Mr. Baldwin stated that they would keep us fully informed as to developments. The information re a satellite field must be considered confidential at this time.

Forrest Cooper
Forrest Cooper
State Highway Engineer

FC:fn
cc C. G. Prahl, Director
Washington Department of Highways
W. A. Bulley, Washington Department of Highways
Oregon State Highway Commission

R. L. Porter
F. B. Klaboe
F. D. Morgan

Tom Edwards
Victor D. Wolfe
Ivan Merchant

A. E. Johnson
L. W. Rulien
H. S. Cox

8105

FORM E-123X 90M 4-62

RECEIVED

COMMISSIONERS
GLENN L. JACKSON, CHAIRMAN
MEDFORD
KENNETH N. FRIDLEY, MEMBER
WASCO
DAVID B. SIMPSON, MEMBER
PORTLAND

STATE OF OREGON
STATE HIGHWAY DEPARTMENT
SALEM 97310

April 1, 1968

Mr. W.A. Bailey, P.E.
District Engineer
Washington State Highway Commission
Post Office Box 1717
Vancouver, Washington 98663

Subj: Columbia River Crossing
East Portland Freeway (I-205)
Agreement No. Y-889

Attention: Mr. T.G. Gray, P.E.
District Location Engineer

Dear Tom:

As discussed by telephone, we have received the coordinates of the main channel from the Corps of Engineers and have worked up what we hope will be a final profile for you to tie to. I am enclosing two copies of the channel coordinate data which we received and two copies of our proposed profile. Not knowing what your problems or desires might be on the profile north of the channel, we rolled the grade to get approximately the same profile elevation at the Lewis & Clark Highway. We have used 70 mph OSHD vertical curve standards on this profile. If it is deemed necessary and desirable, the use of 70 mph AASHO standards would be acceptable.

I believe sufficient information is indicated on the profile so that you can adjust to fit what you think is best. We have indicated profiles carried at the gutter line 54 feet right and left of center line and are using 0.03 superelevation on the 0°45' curve.

After your peoplehave had an opportunity to review this I suggest that you contact A. E. Johnson, Metropolitan Engineer, to work out a meeting and the actual field ties.

If you have any questions please contact me.

Very truly yours,

Forrest Cooper
State Highway Engineer

By ADOlson

A. D. Olson
Urban Engineer

Enclos.
ADO:jp
cc: F.B. Klaboe
A.E. Johnson

905

8

RECEIVED
MAR 28 1968
FOR FILING

STATE OF WASHINGTON
DANIEL J. EVANS, GOVERNOR

COMMISSIONERS
GEORGE D. ZAHN, CHAIRMAN
METHOW
ROBERT L. MIKALSON
CENTRALIA
HAROLD WALSH
EVERETT
BAKER FERGUSON
WALLA WALLA
JOHN N. RUPP
SEATTLE

LORENZ GOETZ, SECRETARY
OLYMPIA

**WASHINGTON**
**STATE HIGHWAY COMMISSION**
**DEPARTMENT OF HIGHWAYS**
C. G. PRAHL, DIRECTOR
HIGHWAYS-LICENSES BUILDING
OLYMPIA

DISTRICT OFFICES
NO. 1 SEATTLE 98108
6431 SO. CORSON AVE.
NO. 2 WENATCHEE 98801
P. O. BOX 98
NO. 3 OLYMPIA 98501
P. O. BOX 227
NO. 4 VANCOUVER 98663
4200 MAIN STREET
NO. 5 YAKIMA 98901
P. O. BOX 52
NO. 6 SPOKANE 99205
N. 2714 MAYFAIR ST.
NO. 7 SEATTLE 98109
509 FAIRVIEW AVE. NO.

March 22, 1968

Mr. Forrest Cooper
State Highway Engineer
State Highway Department
Salem, Oregon 97310

Dear Forrest:

Just to keep you up-to-date on what is happening on our end of I-205, attached is a copy of our recent letter to BPR on the subject. The need for this letter arose as a result of Mr. Hugh Henry's reluctance to approve our plan because he did not have one consolidated set of information for I-205 on both sides of the river. I am sure our people worked with your staff to develop the necessary information.

Sincerely,

C. G. PRAHL, P.E.
Director of Highways

CGP:eg

Attach.

[illegible]

NOTED
FORREST COOPER

RECEIVED
MAR 26 1968
OFFICE OF
STATE HIGHWAY ENGINEER

STATE OF WASHINGTON
DANIEL J. EVANS, GOVERNOR

1889

**WASHINGTON
STATE HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS**
C. G. PRAHL, DIRECTOR
HIGHWAYS-LICENSES BUILDING
OLYMPIA

COMMISSIONERS
GEORGE D. ZAHN, CHAIRMAN
METHOW
ROBERT L. MIKALSON
CENTRALIA
HAROLD WALSH
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BAKER FERGUSON
WALLA WALLA
JOHN N. RUPP
SEATTLE
LORENZ GOETZ, SECRETARY
OLYMPIA

DISTRICT OFFICES
NO. 1 SEATTLE 98108
6431 SO. CORSON AVE.
NO. 2 WENATCHEE 98801
P. O. BOX 98
NO. 3 OLYMPIA 98501
P. O. BOX 327
NO. 4 VANCOUVER 98663
4200 MAIN STREET
NO. 5 YAKIMA 98901
P. O. BOX 52
NO. 6 SPOKANE 99205
N. 2714 MAYFAIR ST.
NO. 7 SEATTLE 98109
800 FAIRVIEW AVE. NO.

Prahl

March 21, 1968

Mr. Roe P. Rodgers
Division Engineer
Bureau of Public Roads
Olympia, Washington 98501

CS 0607 L-2096 45173AA
Columbia River Vicinity
I-205-1( )

Dear Sir:

As a result of a meeting on February 16, 1968 with Mr. Prahl, Mr. Loutzenheiser, Mr. Henry and Mr. Hortenstine, we are attaching three (3) prints each of the following data concerning the I-205 crossing of the Columbia River relative to the proposed expansion of the Portland International Airport. The data is as follows:

| | |
|---|---|
| Exhibit A: | Vicinity map between the Columbia River and I-5 |
| Exhibit B: | Alignment map between Sandy Blvd. in Portland and SE 8th Street in Vancouver |
| Exhibit C: | Route profile between the same limits as on plan |
| Exhibit D: | A vicinity map showing the proposed Lewis and Clark Angus Ranch Development |
| Exhibit E: | Plat of Cascade Park Sub-division |
| Exhibit F: | A letter of February 1, 1968, to Clark County Commissioners from Oregon Highway Commission |
| Exhibit G: | A letter of February 26, 1968, from the Washington Game Department |

The Plan and Profile attached shows the final alignment jointly agreed to by the State of Washington and the State of Oregon, which has been modified to accommodate the proposed construction of a new runway for the Portland International Airport. The attached plans show that the realignment of I-205 for the runway has been maintained to a high type design utilizing a maximum 1° horizontal curve and a maximum 3% grade over the navigation channel.

There has been some discussion of reducing the skew by shifting the alignment eastward in Washington. This has been investigated; however, we find the alignment shift would necessitate a 4% grade line on I-205, and, therefore, is not considered desirable. In addition to the undesirable 4% grade, the resultant line shift would completely upset the status of the local planning which has resulted from several years of coordinated effort with local officials on the present route corridor. In this respect, we have the approval of the City of Vancouver and Clark County and various other school districts, planning commissions, etc., which has resulted in a freeze of development within the right of way corridor which will maintain a minimum right of way cost. The planning commission's action was predicated on the basis that there would be no further changes in alignment. In addition we would point out that area development of school districts and other public agencies for arterial roads, public and private development, etc. has continued on the basis of the present route corridor.

The attached vicinity map of the Angus Ranch Development shows an area abutting on the east of I-205 and encompassing 3,000 acres which is currently being planned for development. The preliminary plat (Cascade Park) of a portion of this area is also attached.

The status of I-205 is as follows:

1. Federal aid route hearings have been held and certified in Oregon and Washington.
2. In Washington, the design report has been approved and right of way plans are virtually complete subject to State statutory requirements. It is planned to begin purchase of right of way in the Summer of 1968.

A letter is attached from the Washington State Game Department which indicates their concern of any shift to the east which could result in a serious conflict with the water supply now serving the fish hatchery. A letter is also attached from the Oregon State Highway Commission to the Clark County Commissioners which shows that the State of Oregon has assured the Washington State Highway Commission that the previously accepted location of the north end of the bridge will not be disturbed by any revisions they are making because of the proposed runway.

The attached data shows, therefore, that the addition of the proposed runway does not necessitate any change in the presently approved alignment in the State of Washington. The accompanying data clearly shows that the revised alignment across the river is maintained at a high standard of design, that the Oregon and Washington Highway Commissions are completely coordinated and in agreement, and that the City of Vancouver and Clark County are desirous of maintaining the approved location to fit their current planning.

As requested in the previously mentioned meeting, held February 16, 1968, we feel we have included herein the requested data and therefore we respectfully request an approval of Addendum No. 1 to Design Report No. 1 between the Columbia River and SR 500 which was deferred by your letter of February 20, 1968.

Very truly yours,

C. G. PRAHL, P.E.
Director of Highways

By: VAL G. RINEHART, P.E.
Roadway Development Engineer

CGP:bm
AWT/VWK
Attachments
cc: Prahl
Andrews
Bulley

RECEIVED

FOR FILING

March 5, 1968

Mr. Ogden Beeman
Port of Portland
P. O. Box 3529
Portland, Oregon 97208

Dear Mr. Beeman:

As discussed between the Port of Portland staff and Highway Department personnel, we have prepared data concerning the I-205 crossing of the Columbia River at a location which is compatible with the proposed airport development.

We forward for your use four copies each of a planimetric map, a profile, a plan and elevation drawing of the proposed bridge, and a perspective sketch of the proposed crossing.

We have not submitted a request to the United States Coast Guard for a revision of our river crossing application and will not do so until such time as the Port deems it advisable. Would you kindly advise us when the correct time arrives for this submission.

Very truly yours,

Forrest Cooper
State Highway Engineer

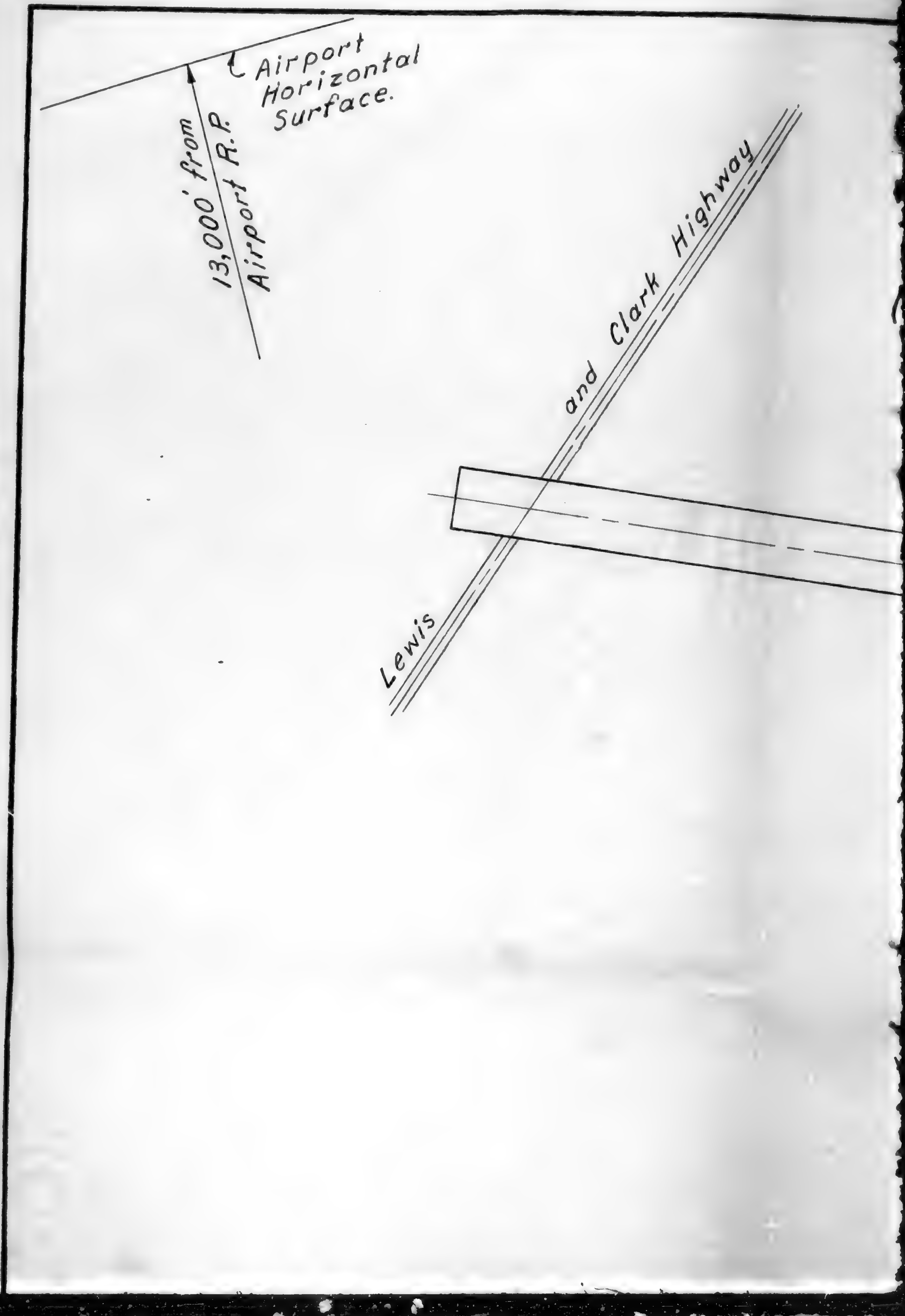
By

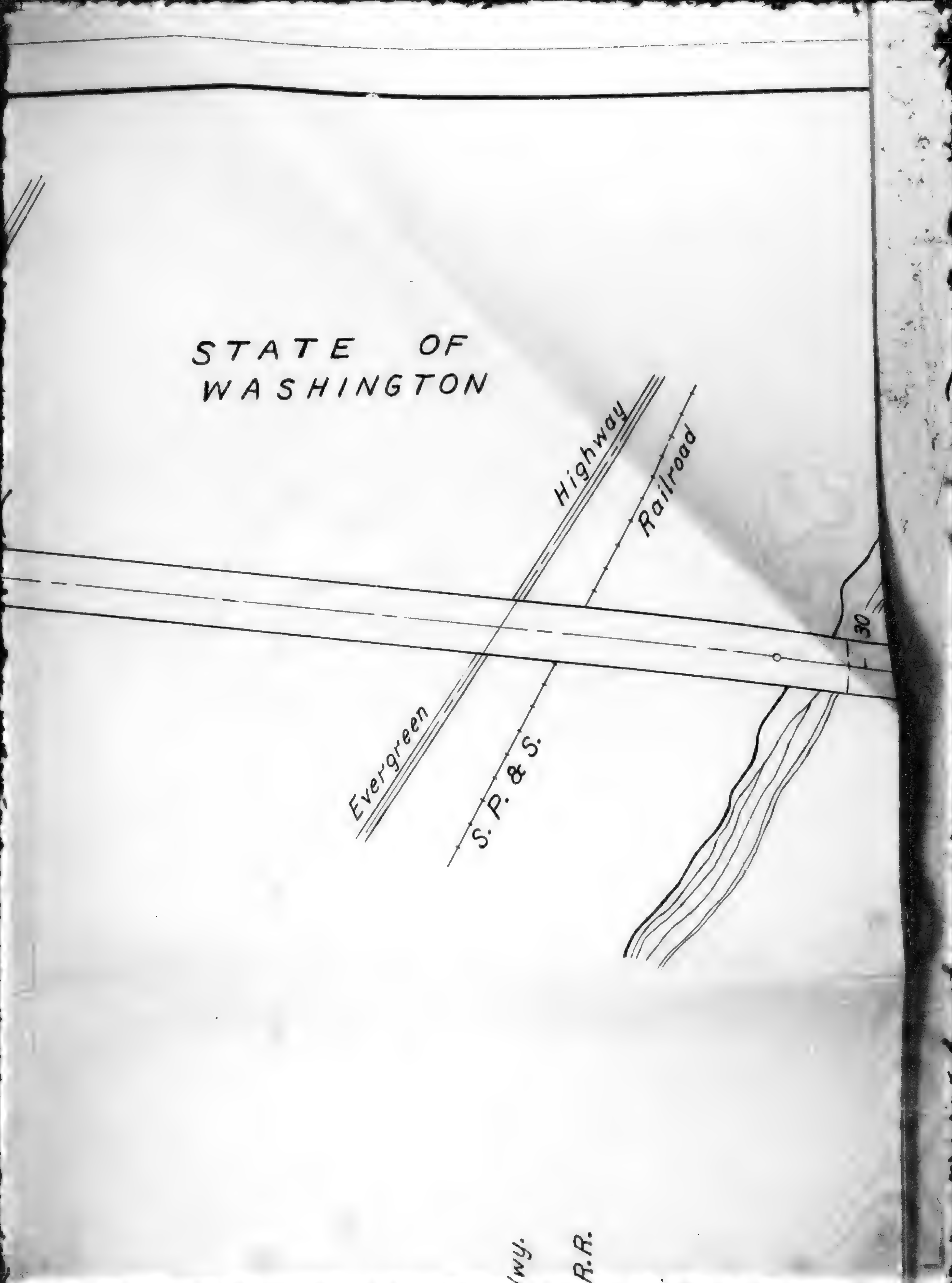
Tom Edwards
Assistant State Highway Engineer

TE:ja

Enc.

bc Forrest Cooper
R. L. Porter
F. B. Klaboe
Victor D. Wolfe
F. D. Morgan
Ivan Merchant
H. S. Cox
A. E. Johnson (enc.)


℄ Airport Horizontal Surface.
13,000' from Airport R.P.
Lewis and Clark Highway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Evergreen Highway
S. P. & S. Railroad
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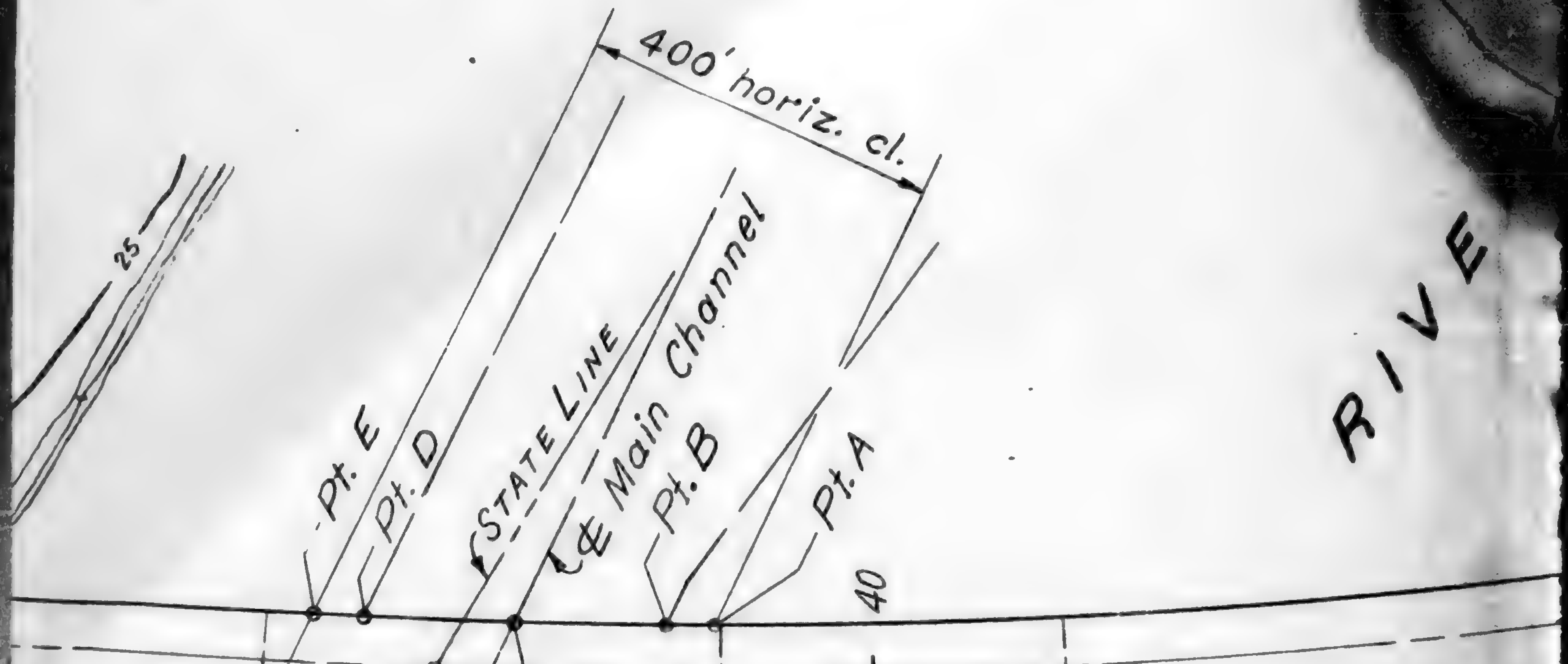
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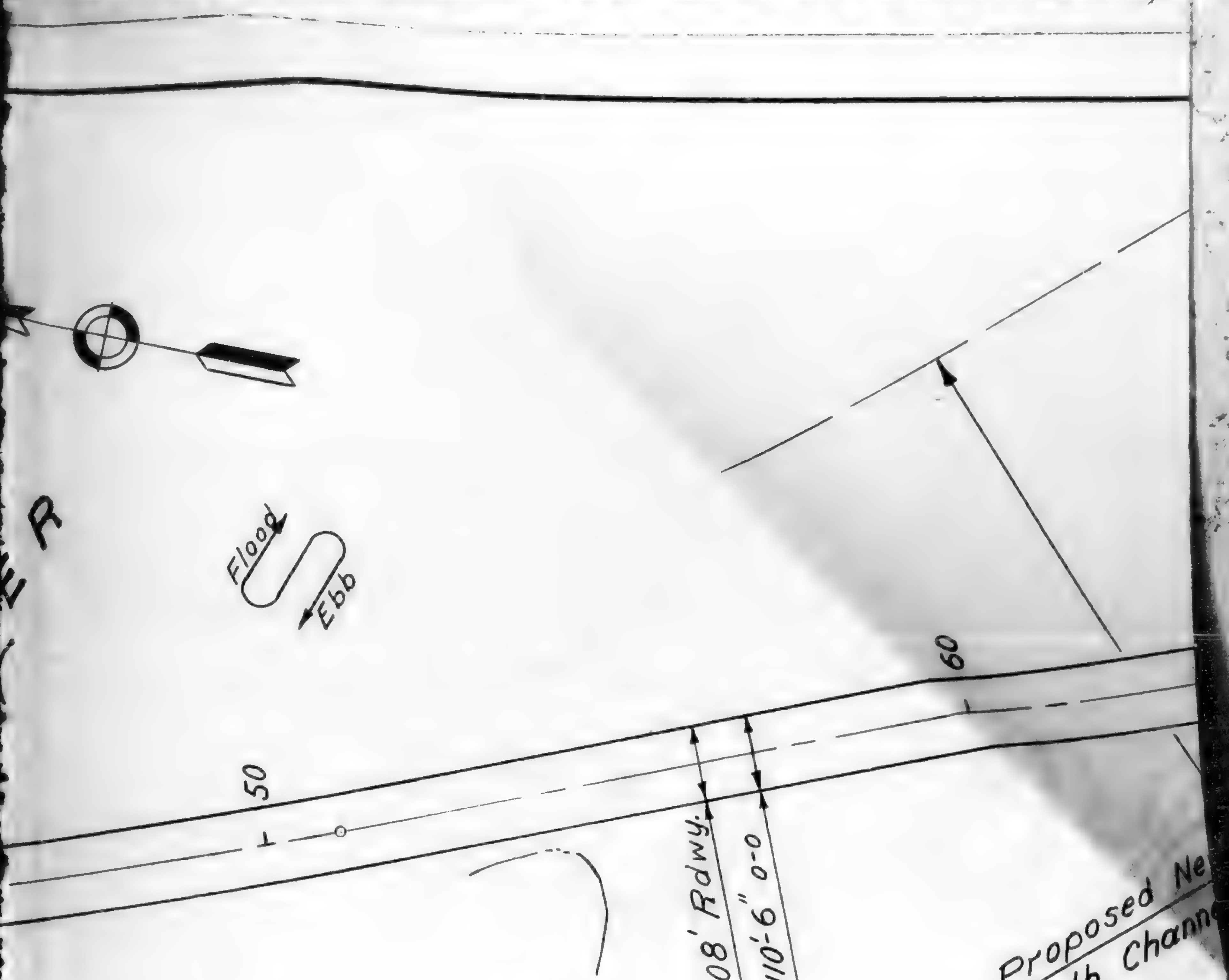
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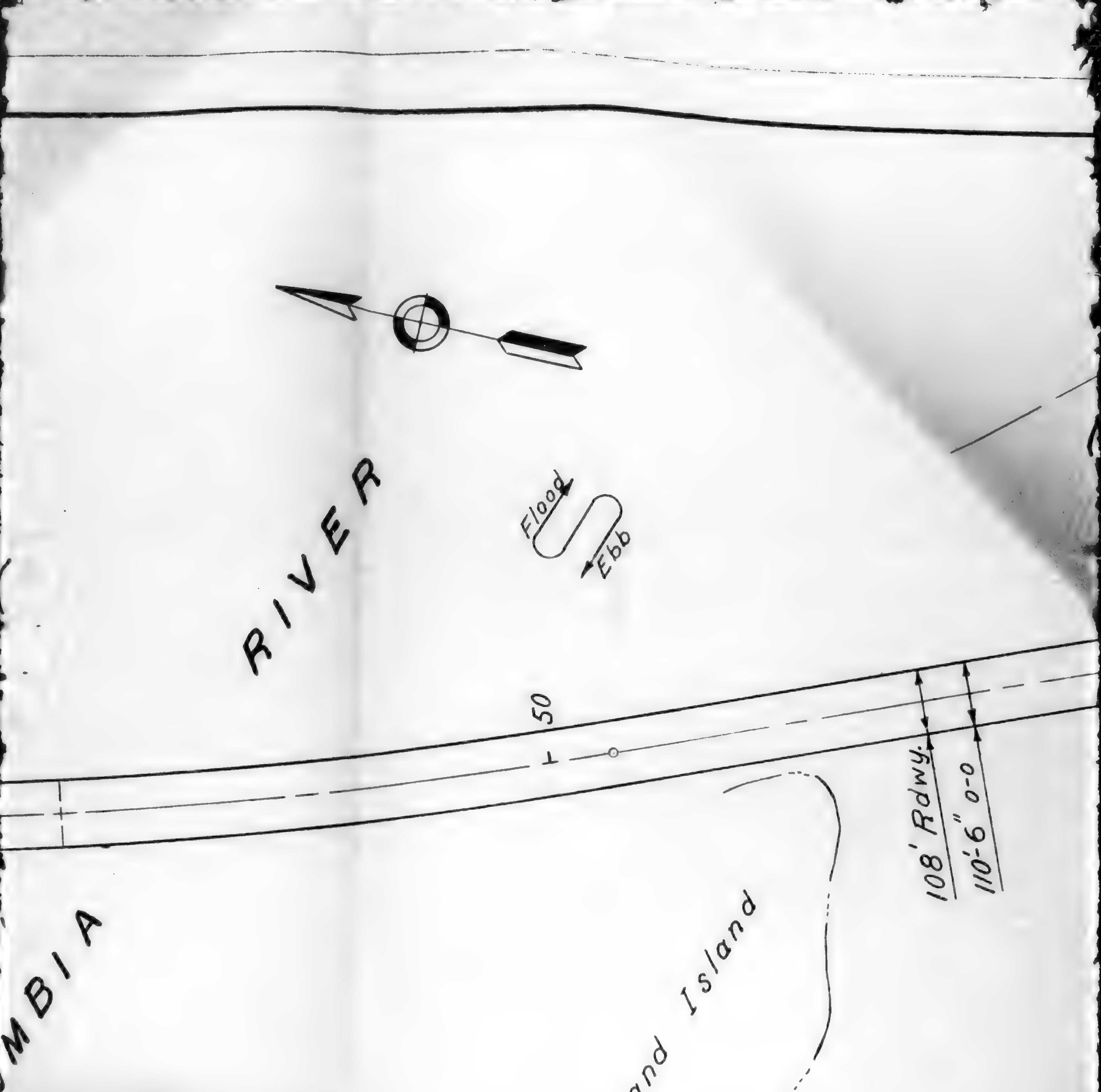
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Flood
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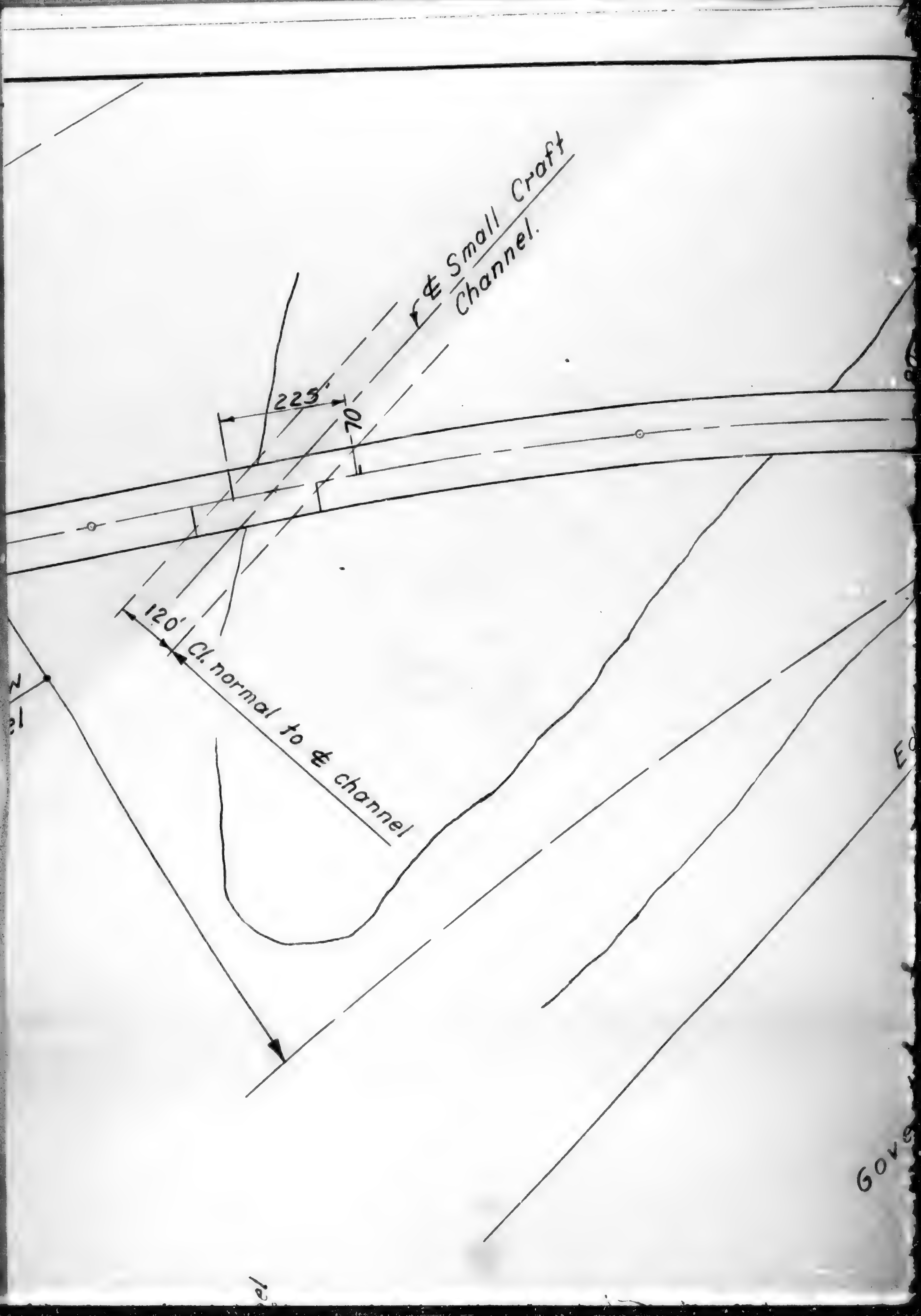
108' Rdwy.
110'-6" o-o
Sand Island

PLAN

Scale 1" = 200'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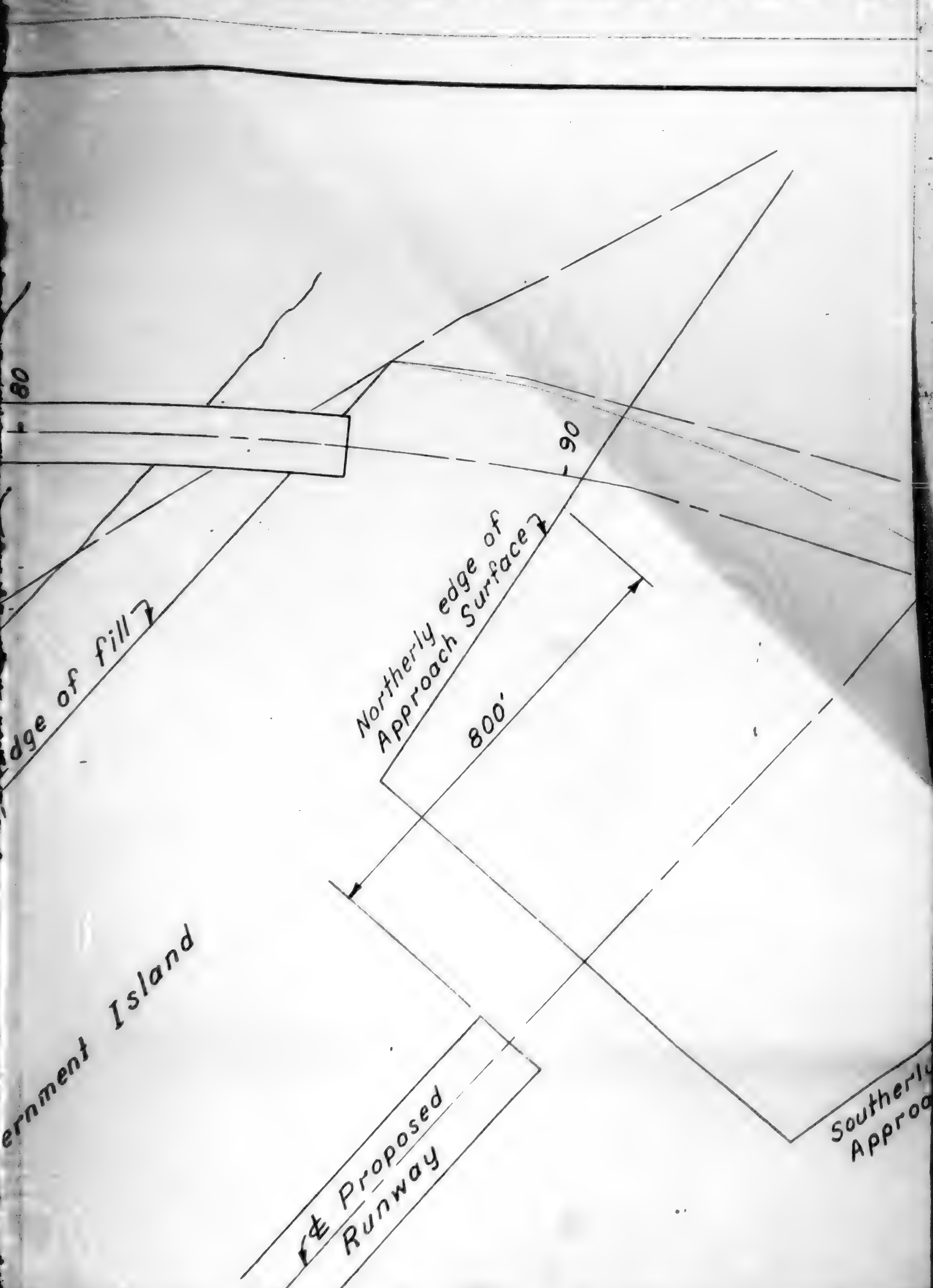
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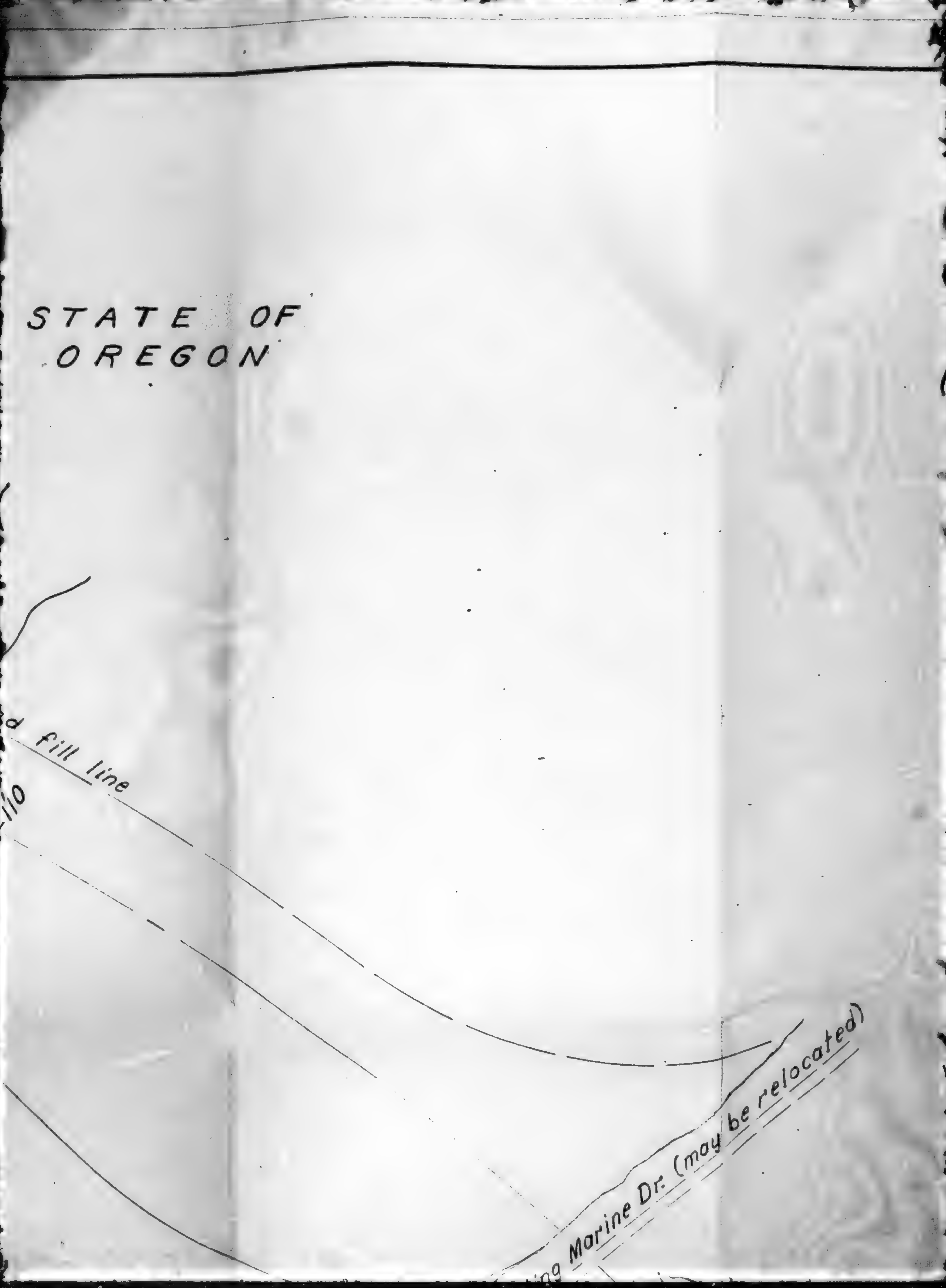
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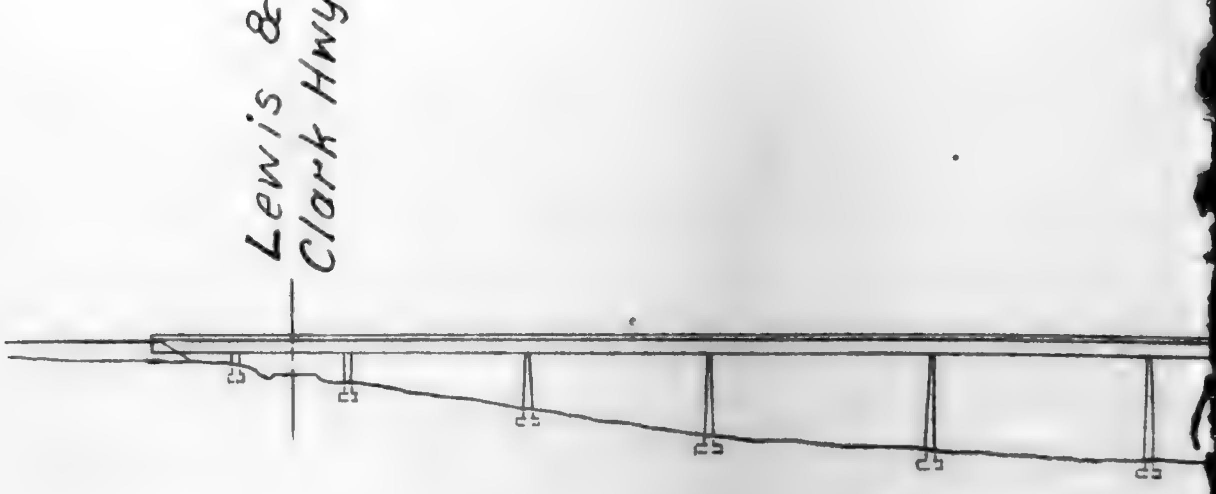
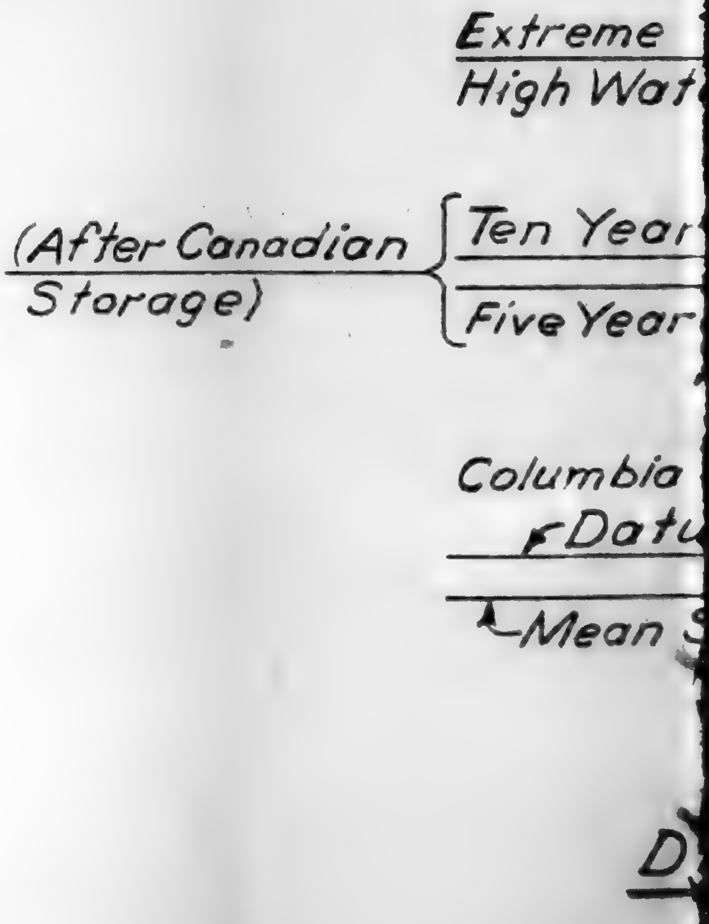

Lewis & Clark Hwy.

## DATUM

Mean Low Water, Columbia River Datum, corresponds to an Elev. of 2.48 feet above mean sea level. Soundings are in feet and refer to mean low water, Columbia River Datum.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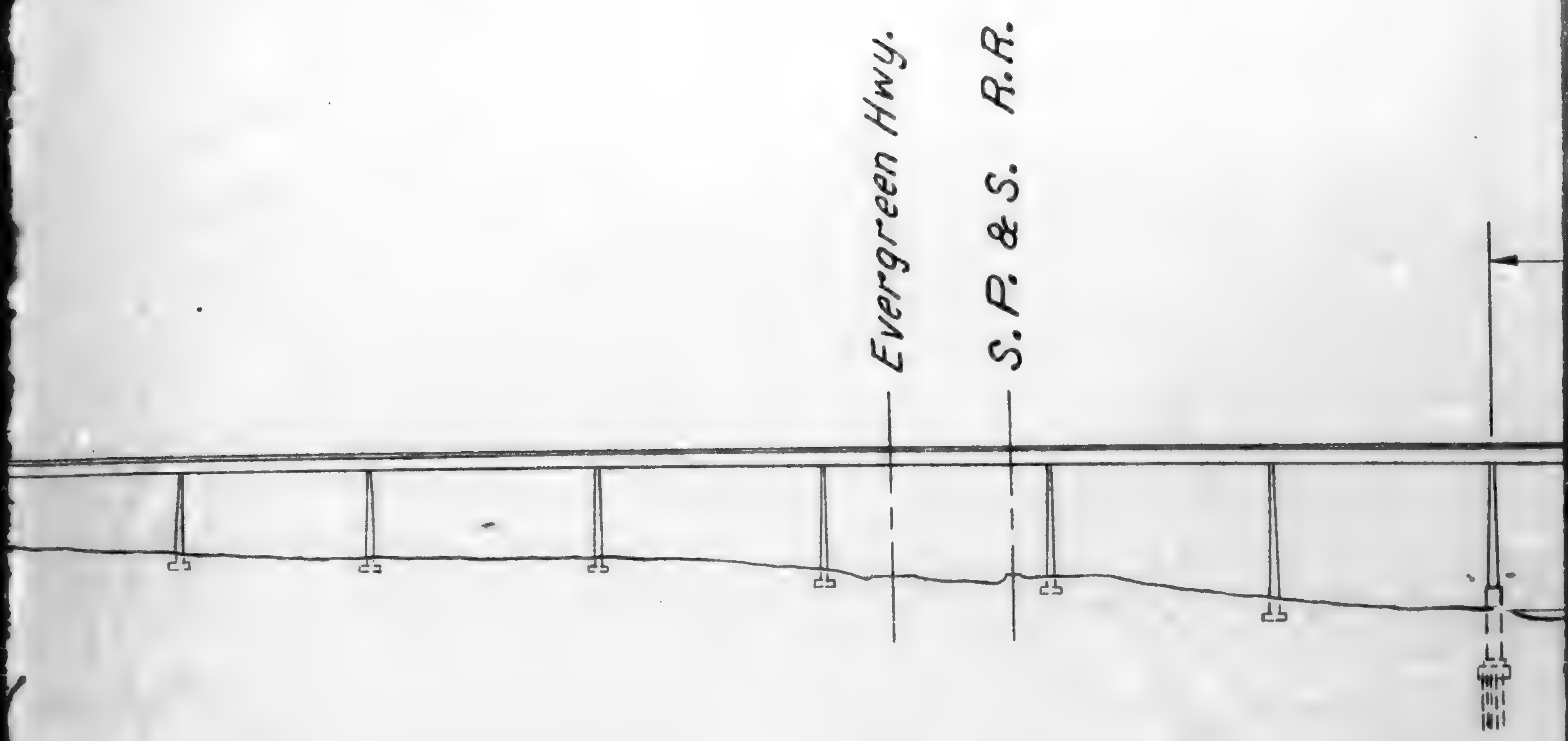
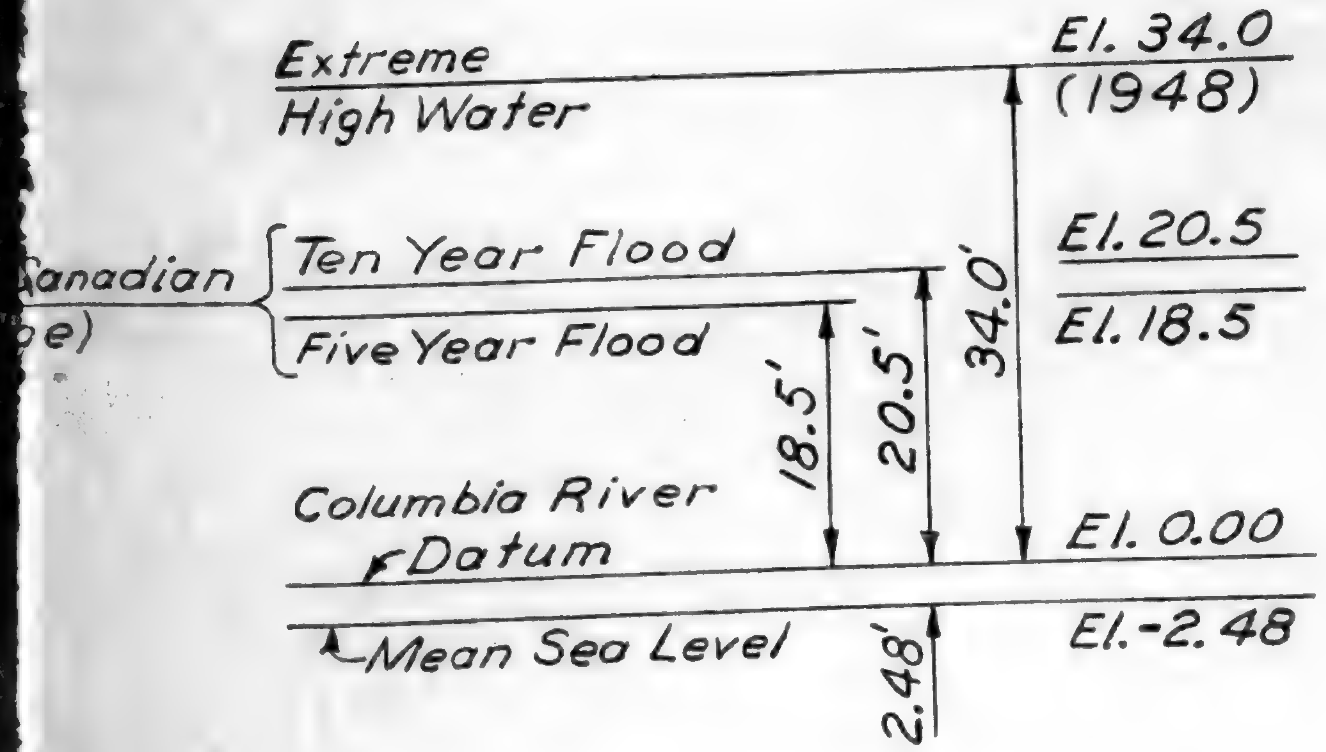

Evergreen Hwy.
S.P. & S. R.R.


Extreme
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Five Year Flood
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Columbia River
Datum
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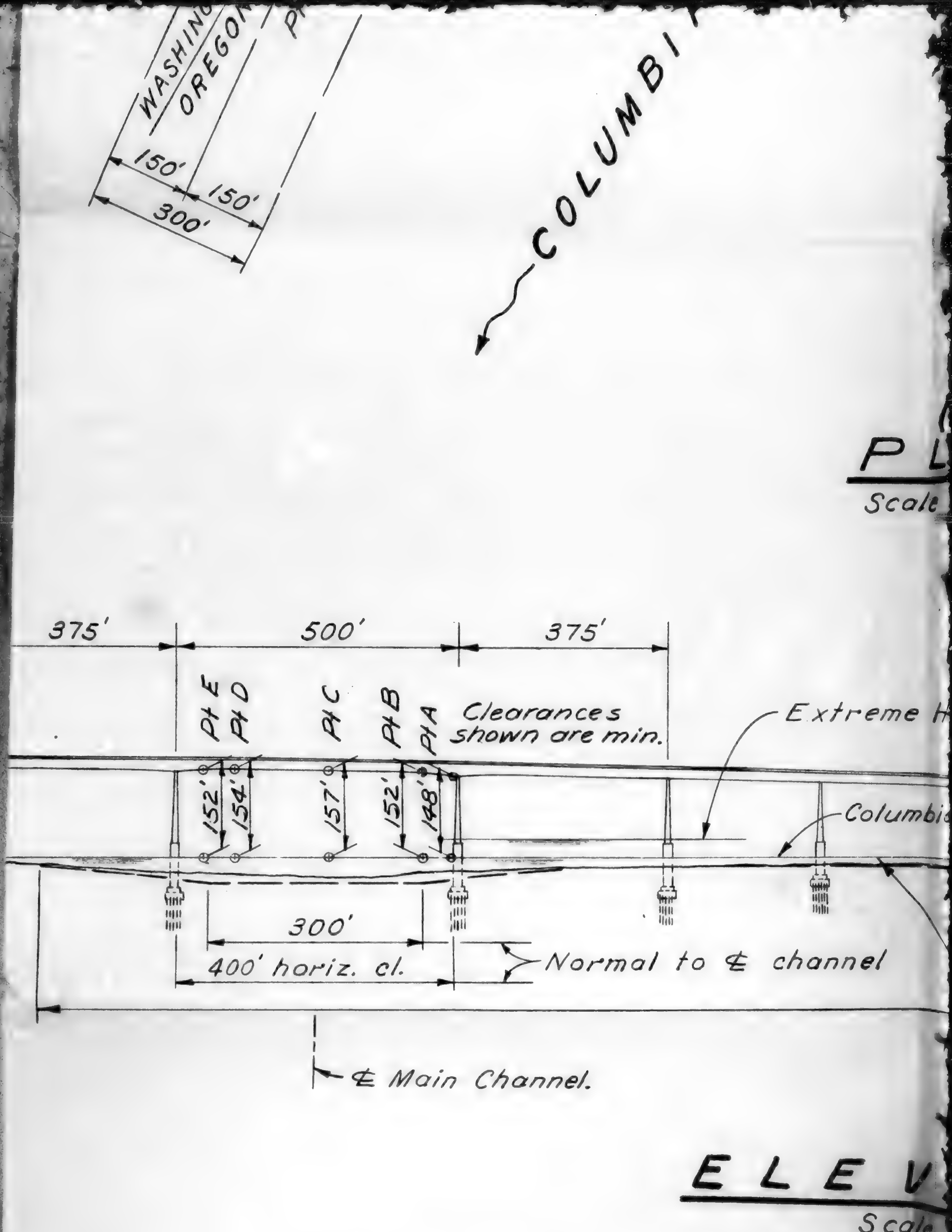
Mean Sea Level
El. -2.48
2.48'

DATUM PLANES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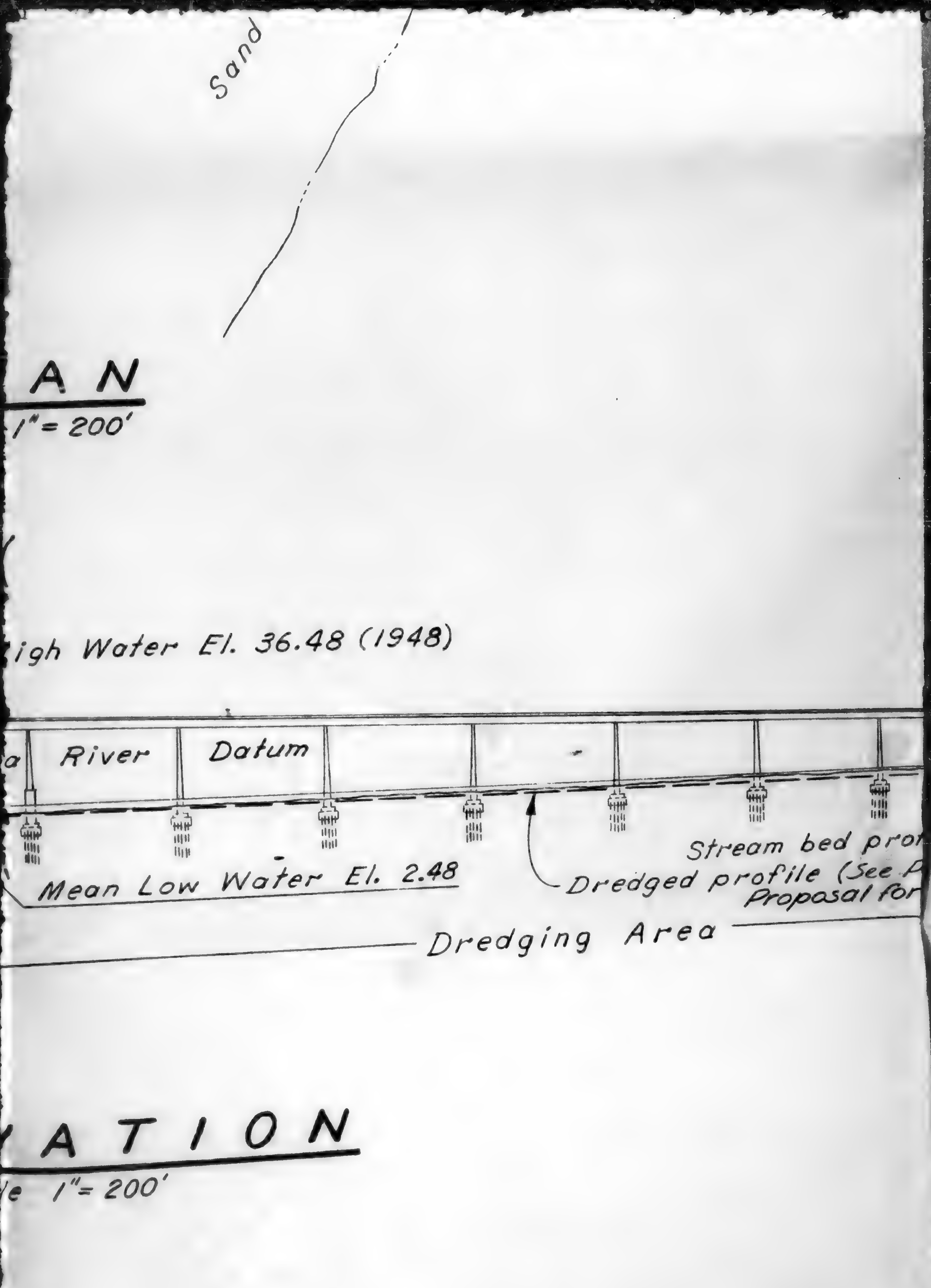
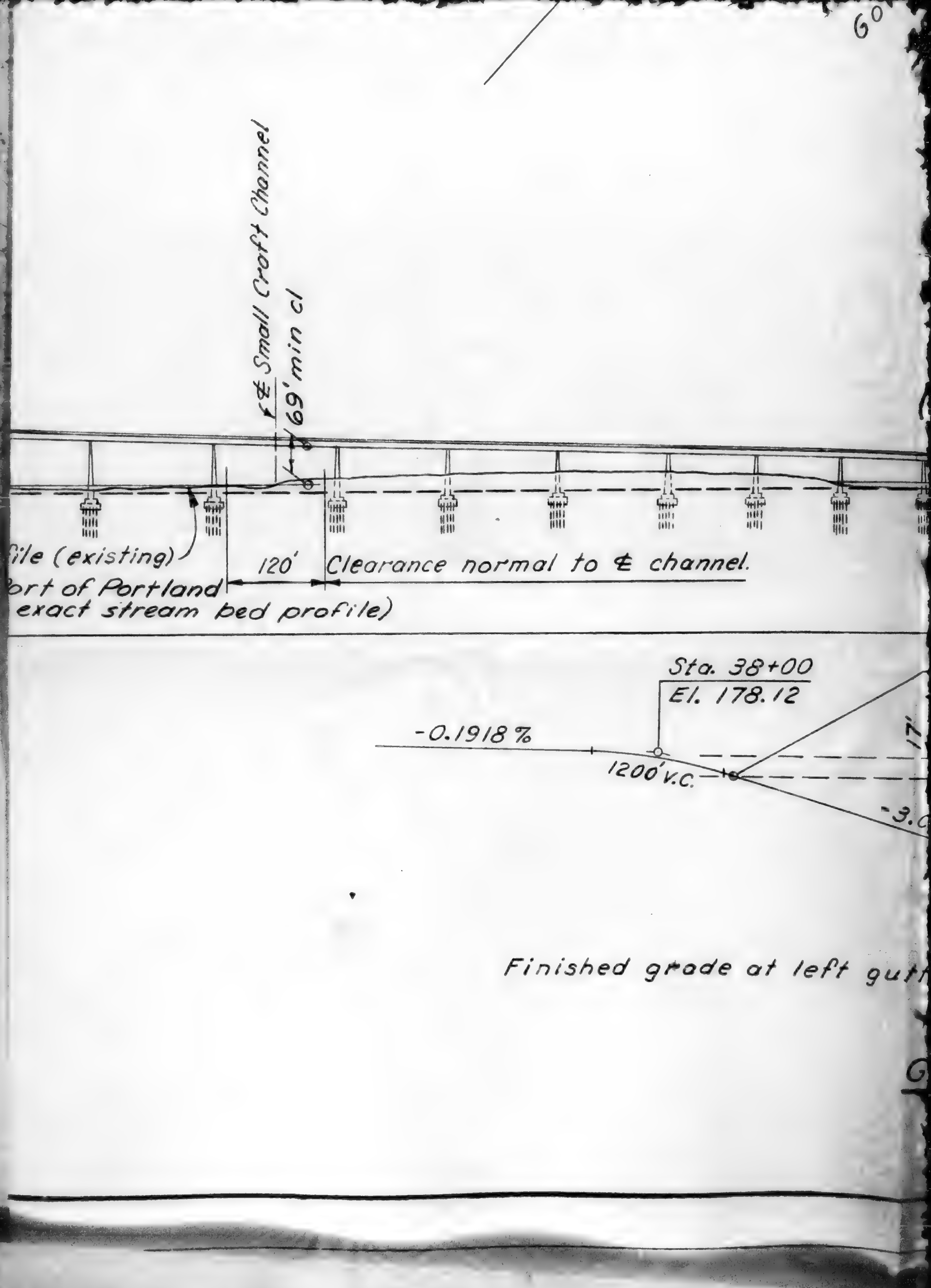
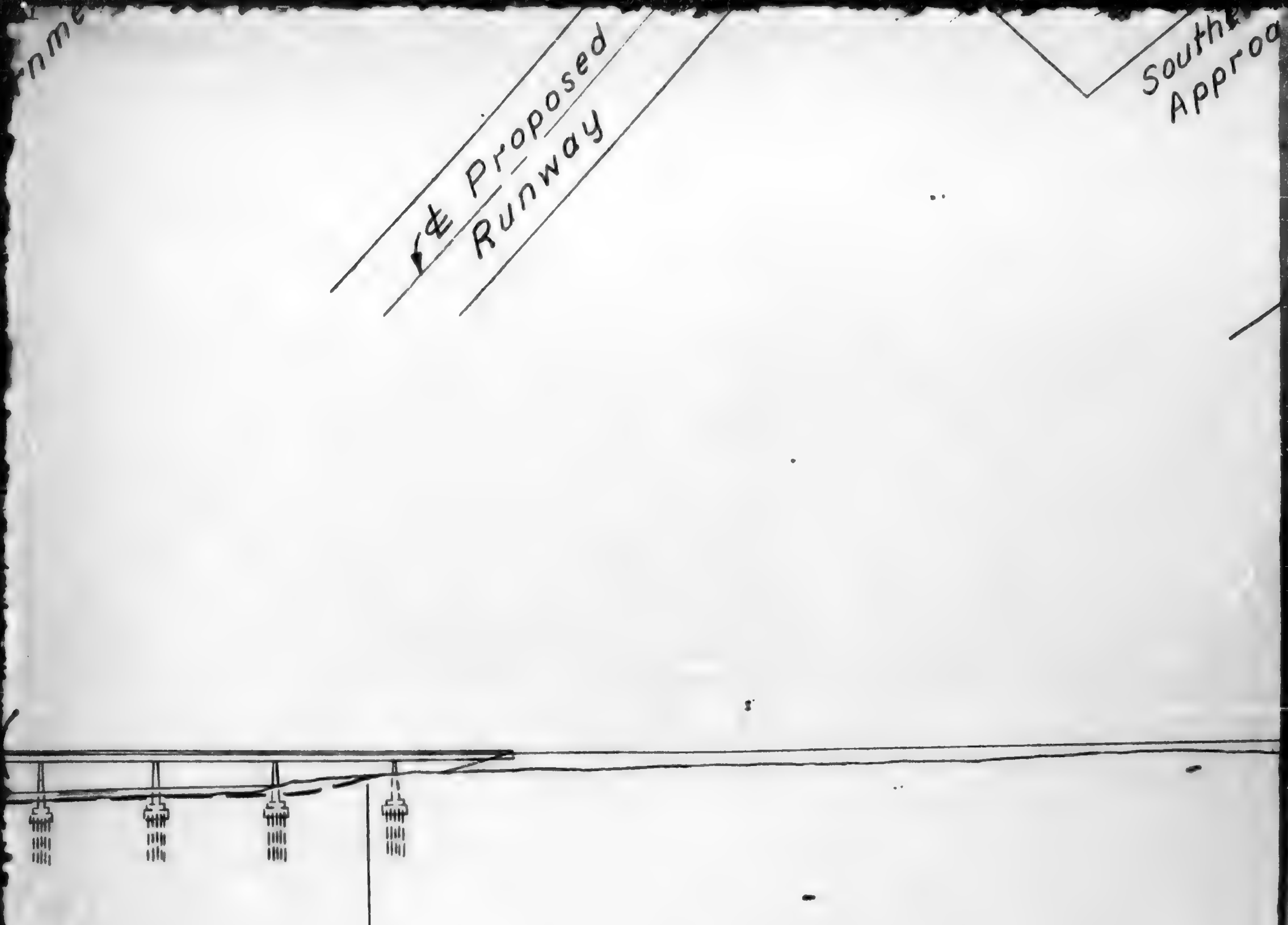
E L E V
Scale


Sand
A N
1"= 200'
igh Water El. 36.48 (1948)
a River Datum
Stream bed pro
Dredged profile (See P
Proposal for
Mean Low Water El. 2.48
Dredging Area
A T I O N
le 1"= 200'


℄ Small Craft Channel
69' min cl
file (existing)
ort of Portland
exact stream bed profile)
120'
Clearance normal to ℄ channel.
Sta. 38+00
El. 178.12
-0.1918 %
1200' V.C.
17'
-3.0
Finished grade at left gutt
G


nme
℄ Proposed
Runway
South
Approa
Sta. 44 + 70± = Intersection of deck at ℄
with airport horizontal surface.
17'
El. 175
El. 158
3.00%
Proposed Runway
approach surface.
800' V.C.
+ 0.
Sta. 86+00
El. 34.12
utter
℄ Marine Dr.

## GRADE LINE DIAGRAM

Scale: Horiz., 1" = 1000'
Vert., 1" = 100'

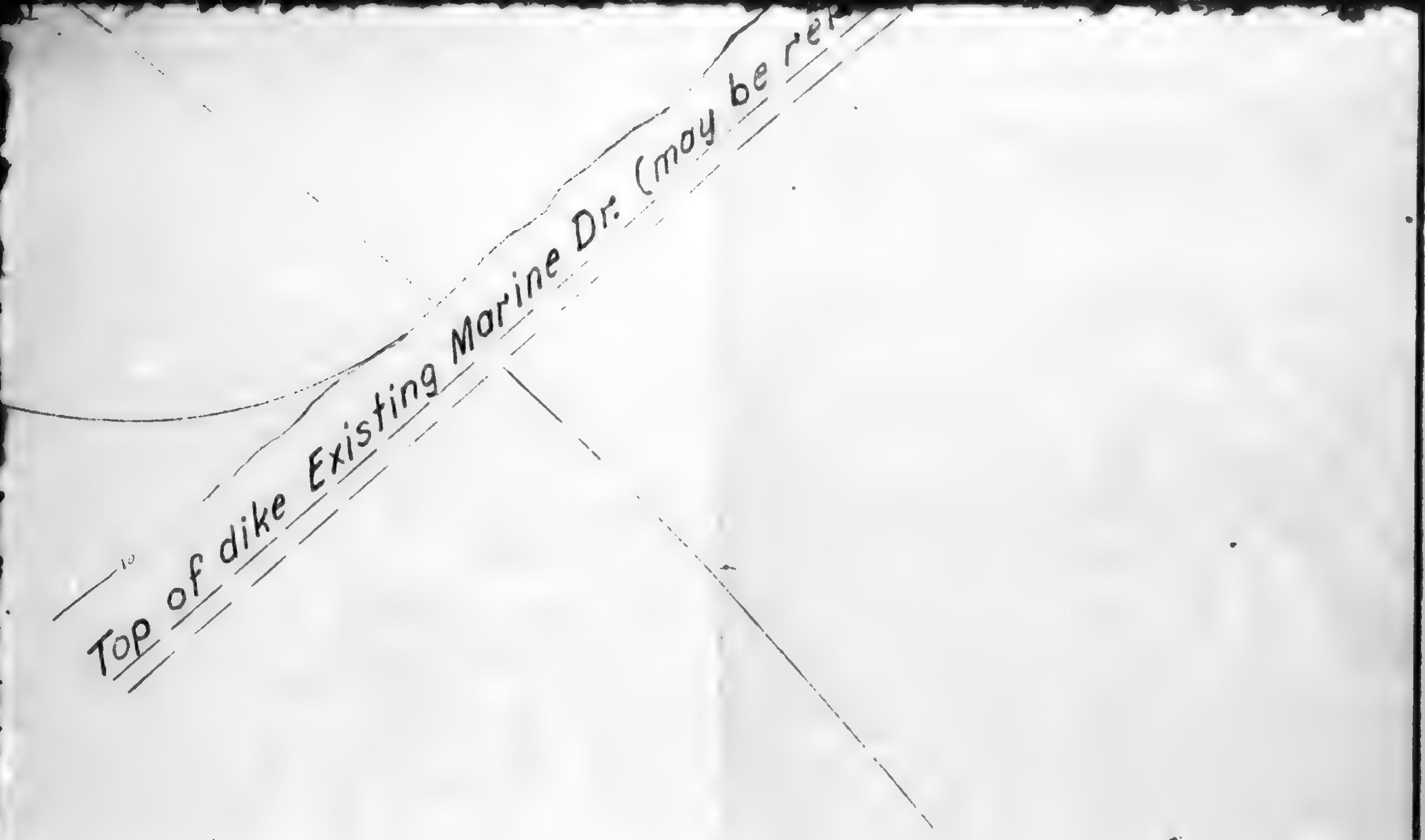
NOTE: Elevations shown
on USC&GS, 1947
Mean sea level - El

22 %

N.E.

are based
adjustment.
ev 0.00

AP
DR
AS
ST
DE
DR


Top of dike Existing Marine Dr. (may be re

GINEER

E HIGHWAY ENGINEER

HWAY ENGINEER

| | |
|---|---|
| | CHECKED |
| IBL | CALC. BOOK |

**OREGON STATE HIGHWAY DEPARTMENT**
**BRIDGE DIVISION**

COLUMBIA RIVER CROSSING
LEWIS & CLARK HWY. - SANDY BLVD. SEC.
EAST PORTLAND FREEWAY (I-205)

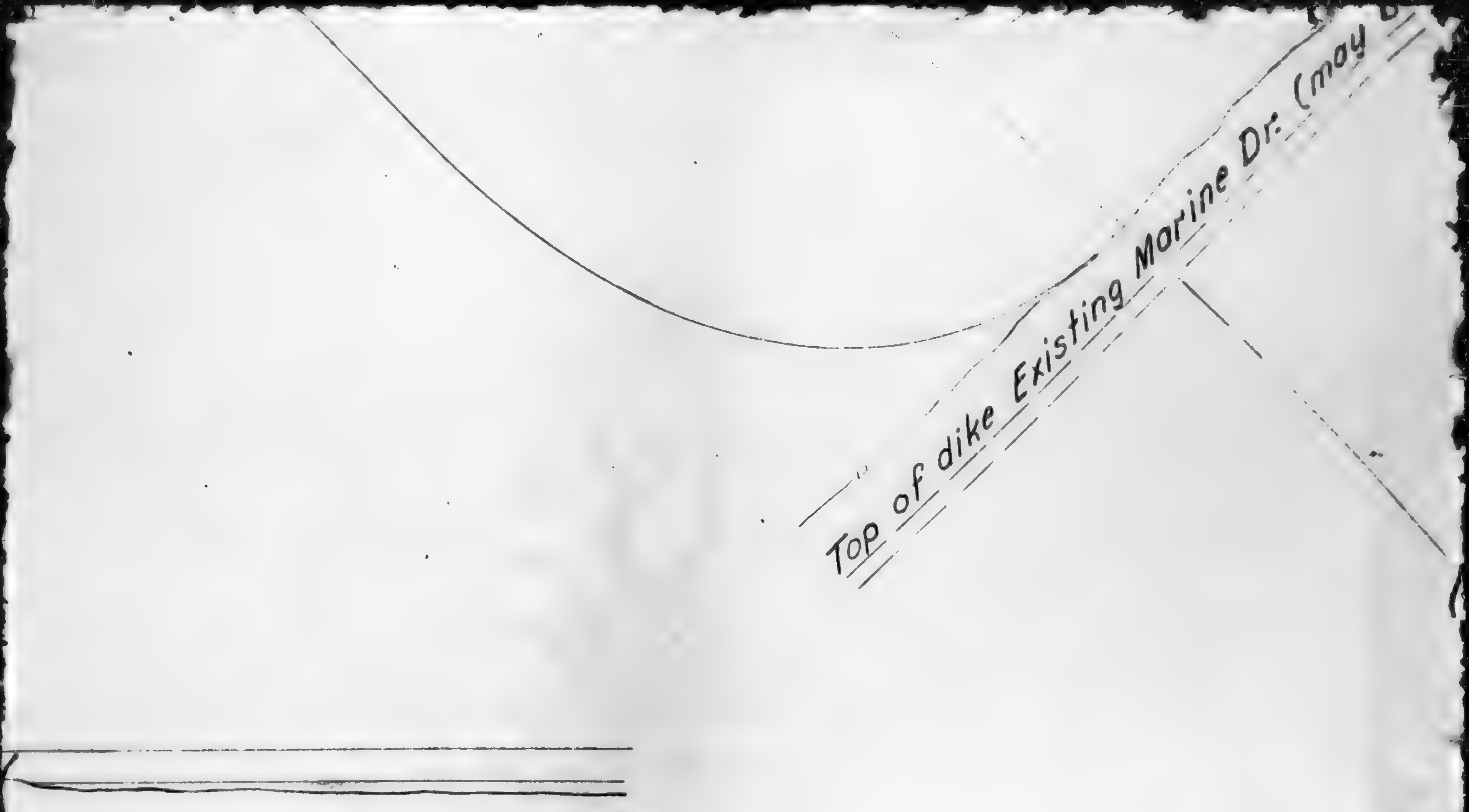
PRELIMINARY PLAN & ELEVATION

DATE FEB 29 '68 BRIDGE NO. 9555

ACCOMPANIED BY DWGS.

SHEET 1 OF 1

DRAWING NO.


Top of dike Existing Marine Dr. (may b

APPROVED:

BRIDGE ENGINEER

ASS'T. STATE HIGHWAY ENGINEER

STATE HIGHWAY ENGINEER

DESIGNED

DRAWN JBL

CHECKED

CALC. BOOK

OREGON STATE H
BRIDG

COLUMBIA R
LEWIS & CLARK HW
EAST PORTLAN

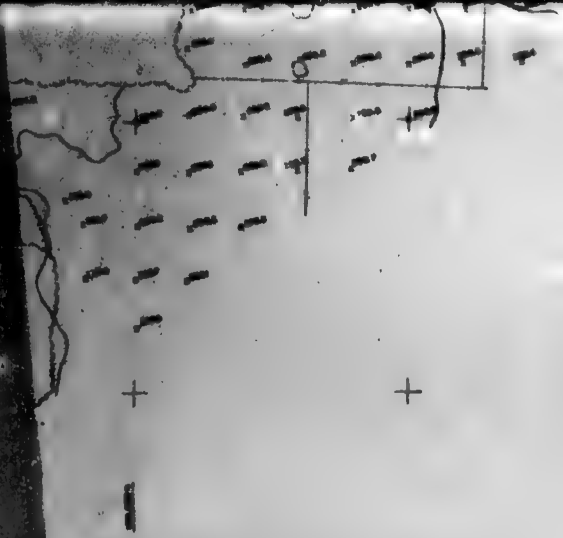
PRELIMINARY

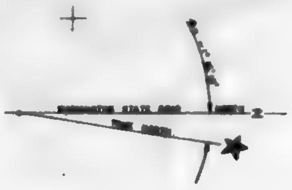
DATE FEB 29 '68 BRIDGE NO. 9

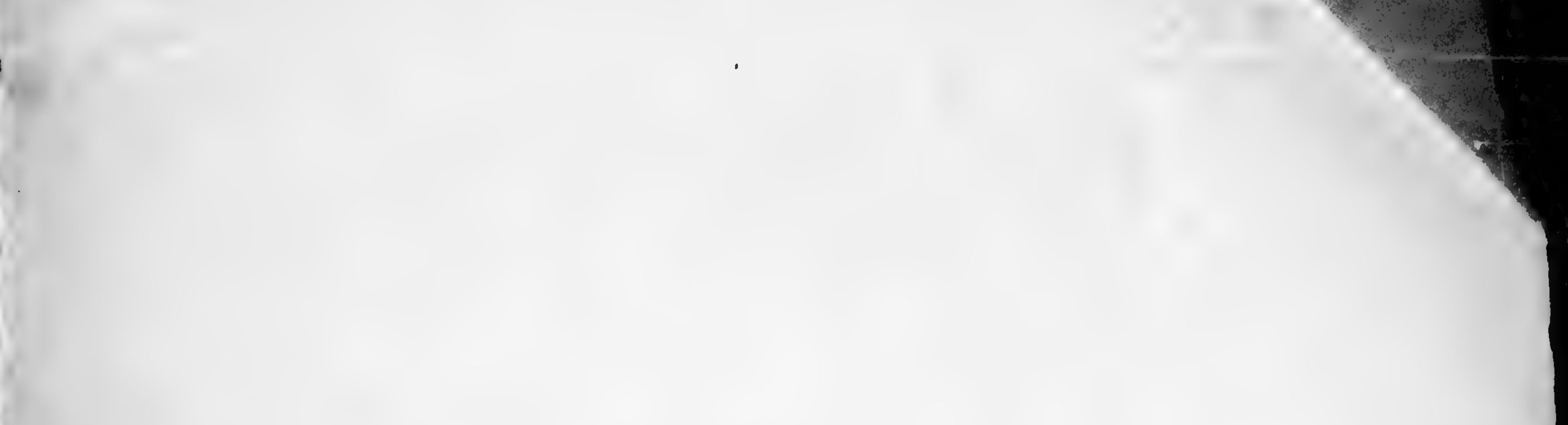
ACCOMPANIED BY DWGS.

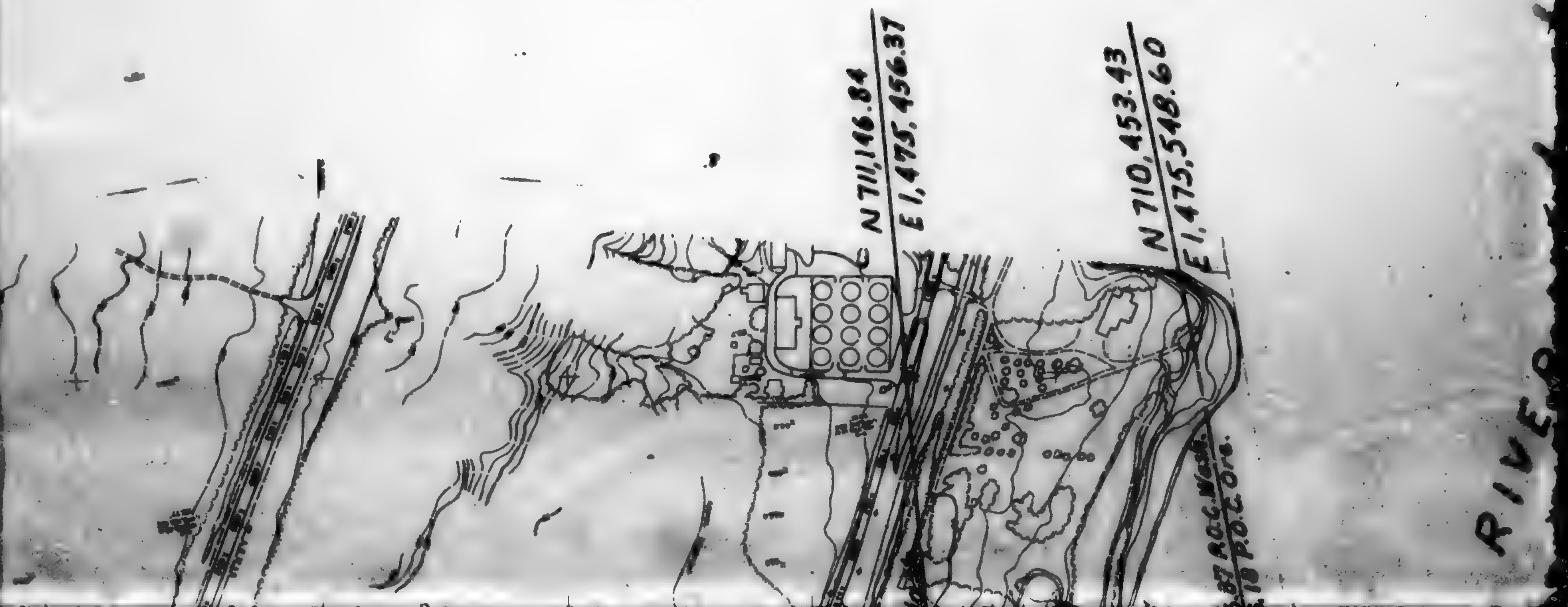
TO MILL PLAIN RD

CONSULTANT SPENCER & [illegible] AGREEMENT [illegible] Y-[illegible]
SCALE 1" = [illegible]' CONTOUR INTERVAL 2'
DATUM: MEAN SEA LEVEL [illegible] ADJUSTMENT
DATE [illegible] SHEET 1 OF 7 SHEETS

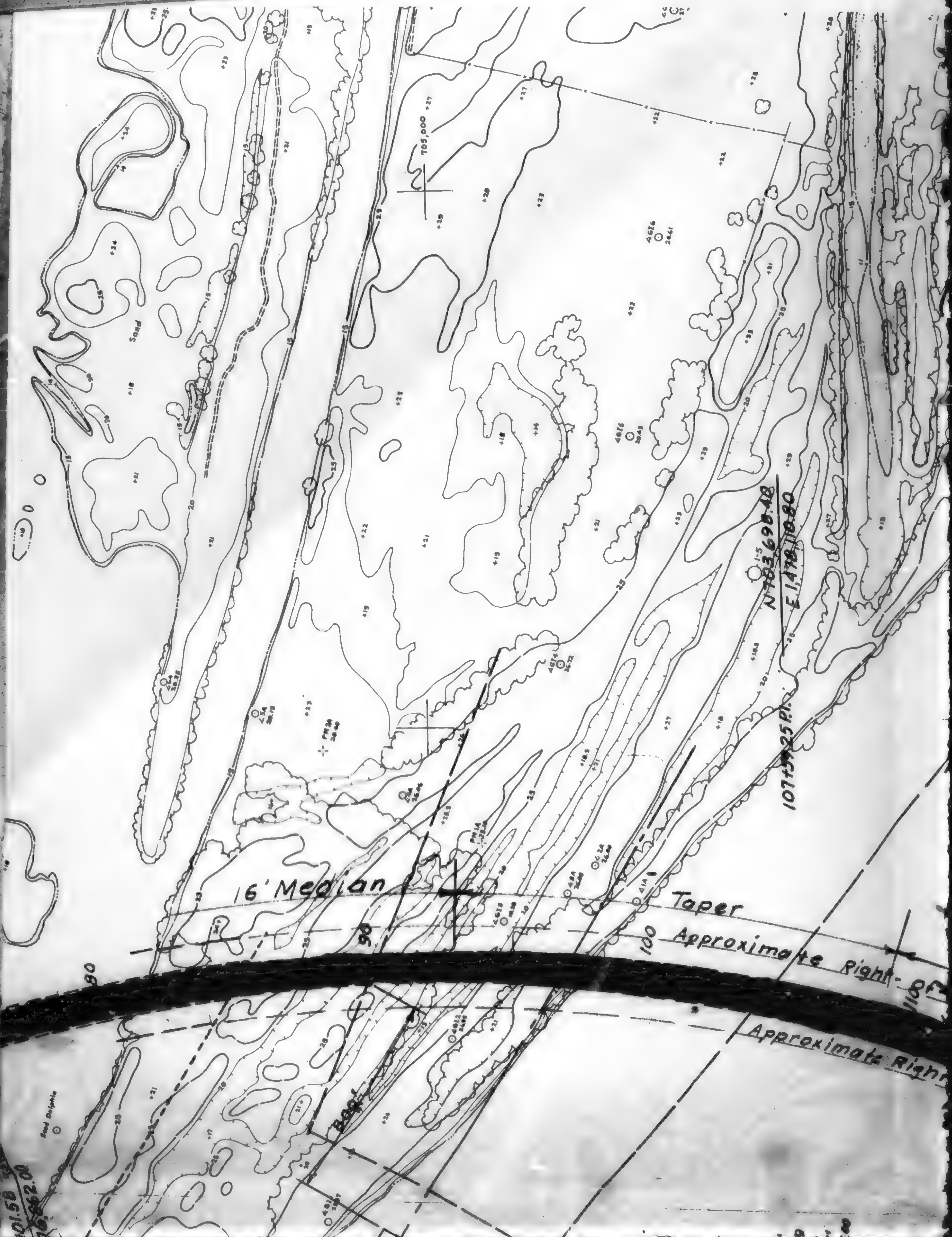


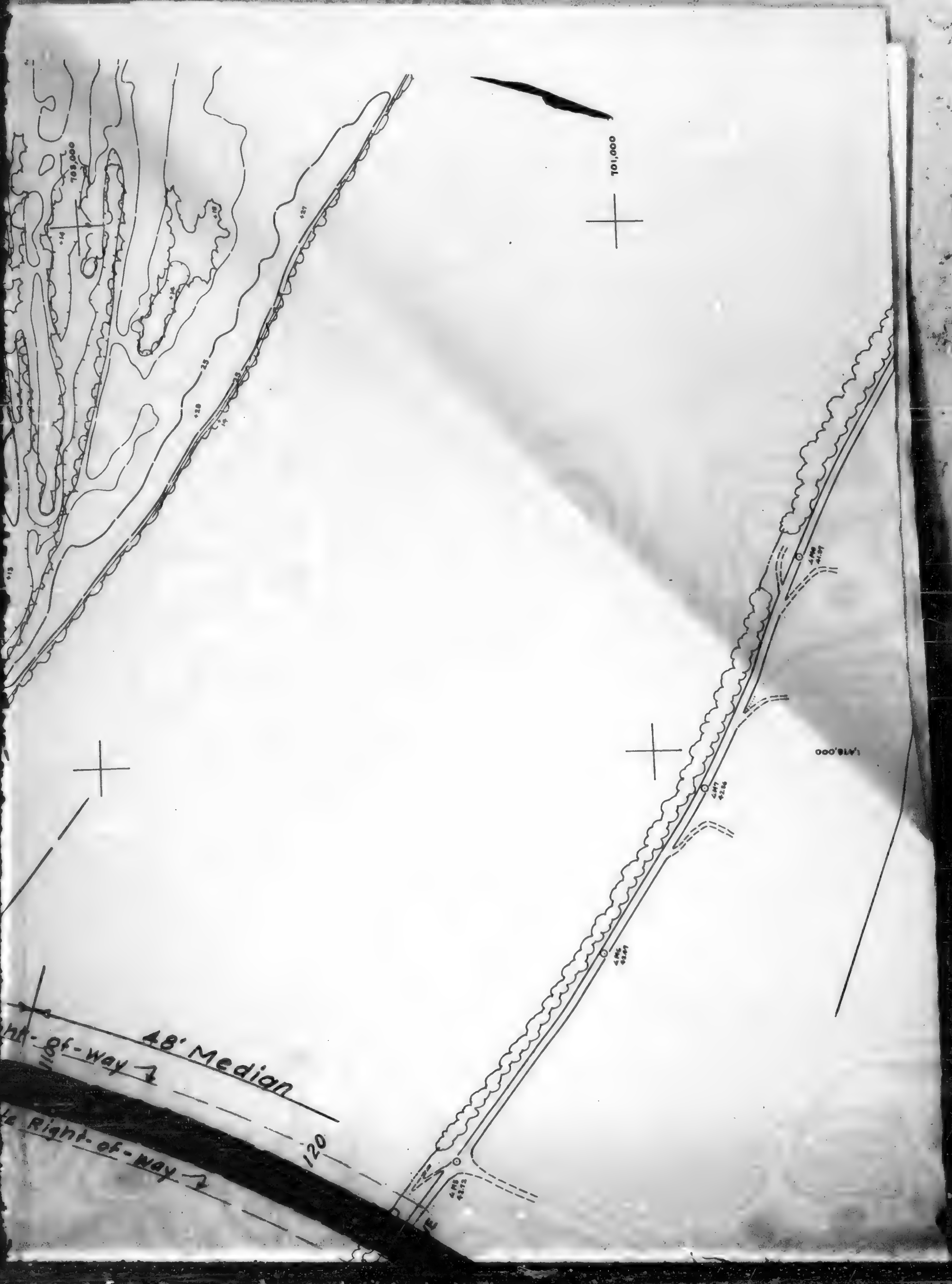




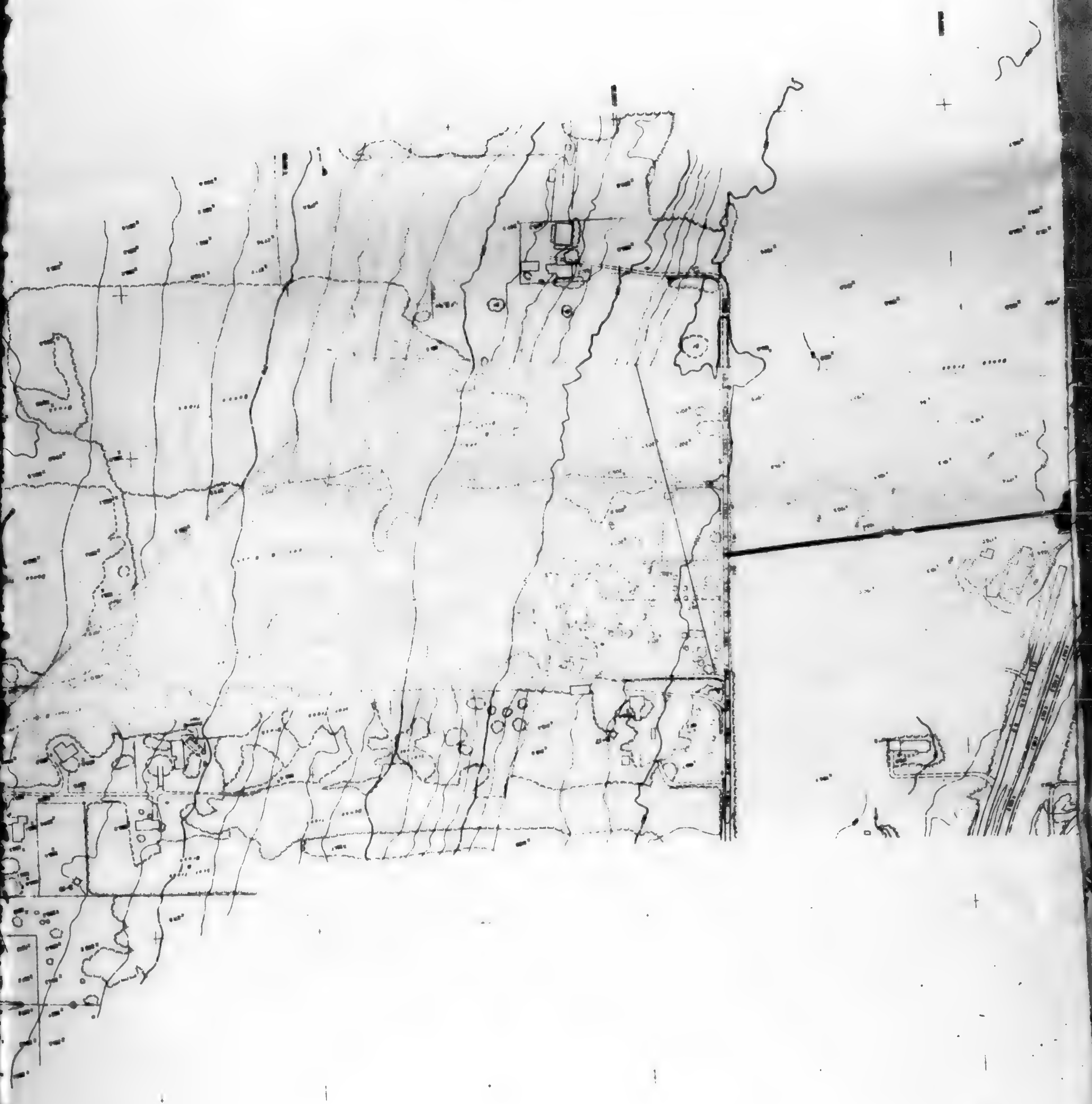

N 711,146.84
E 1,475,456.37
N 710,453.43
E 1,475,548.60
RIVER

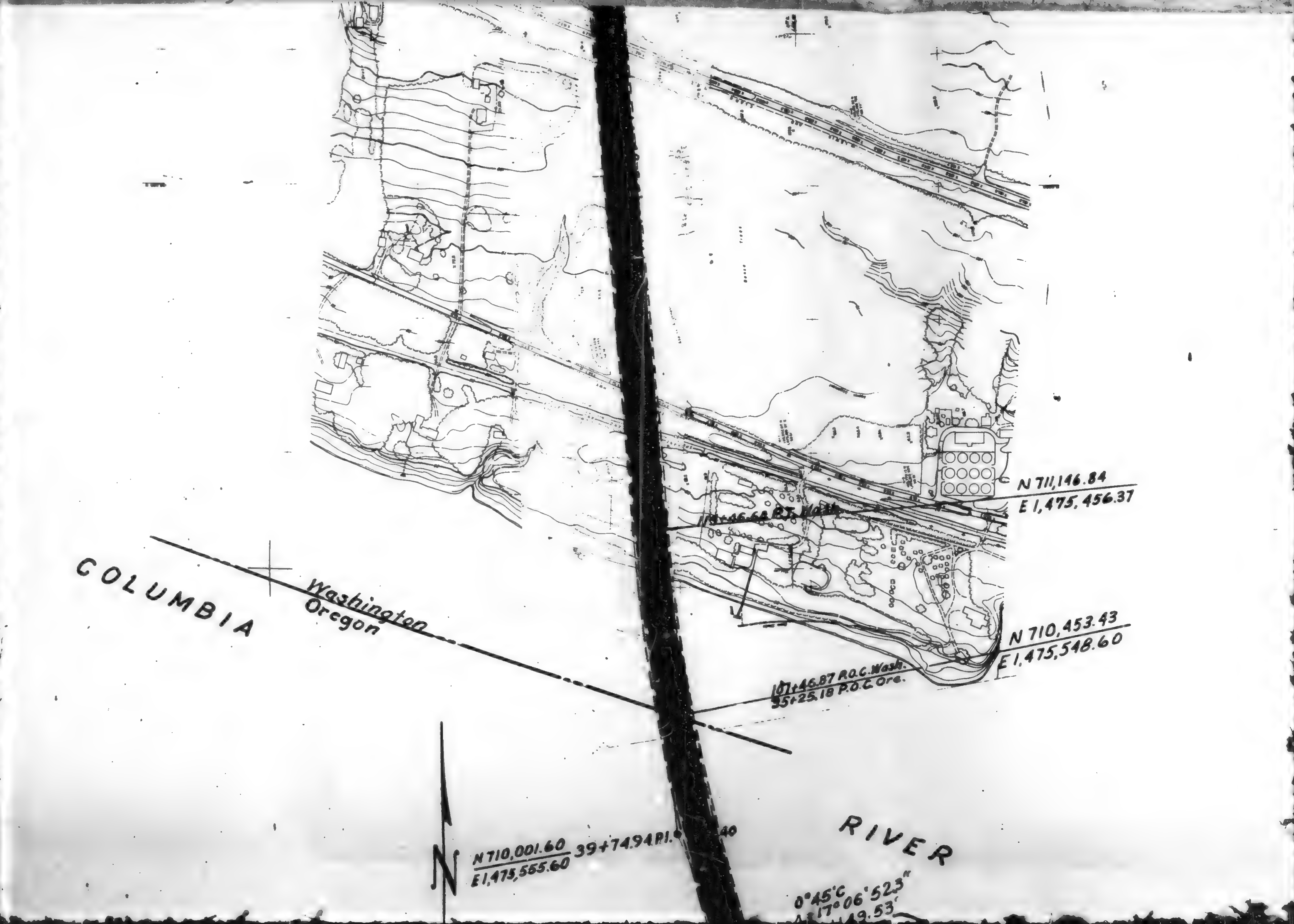
RIVER
N 708,936.28
E 1,475,987.46
Sand
90
50
1000' spiral

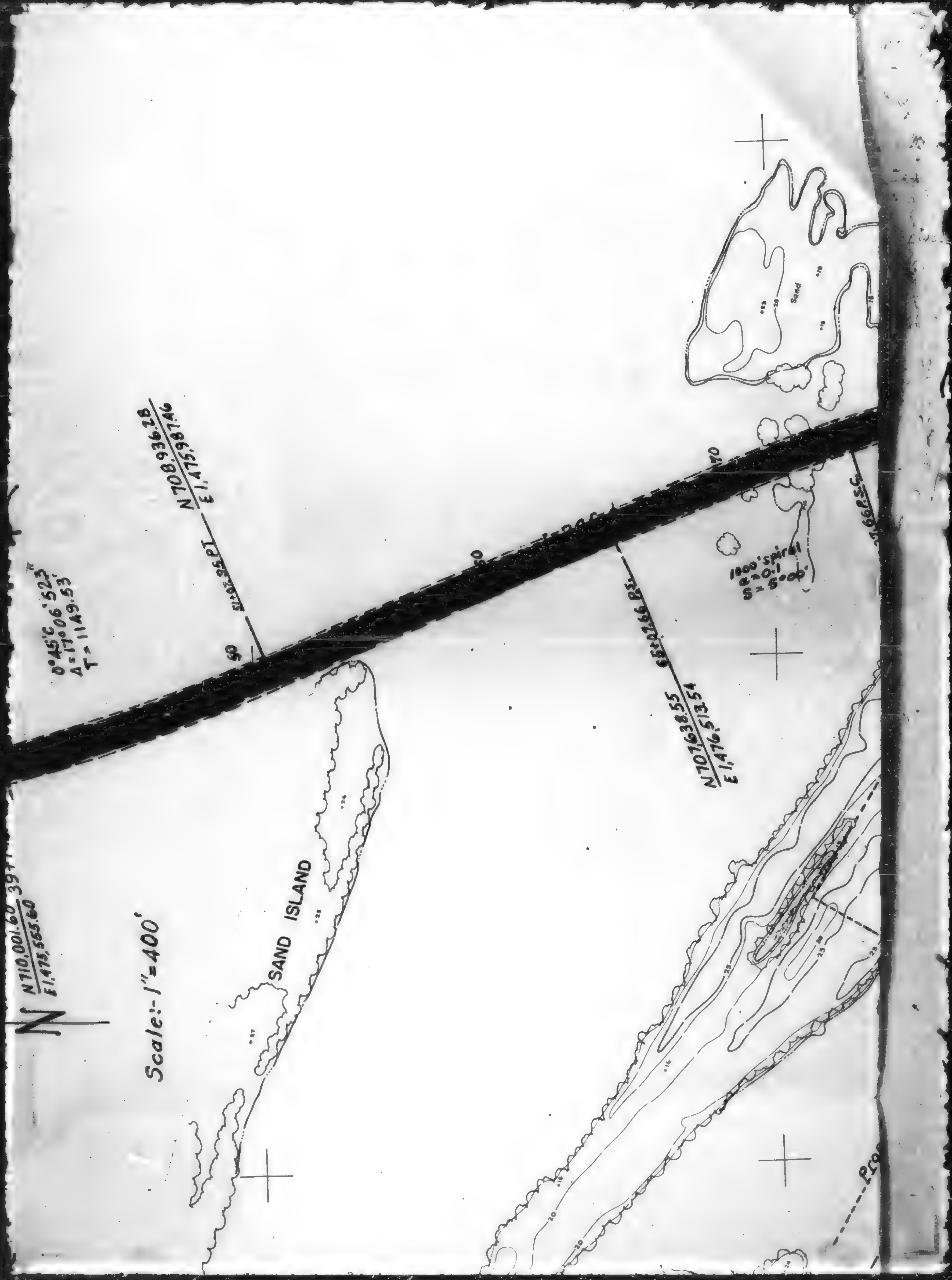

105,000
Sand
N 103,690.48
E 1,478,110.80
107+25 P.I.
16' Median
Taper
80
90
100
Approximate Right-of-
Approximate Right
Begi
Dead Dolphin
01.58
76,862.00

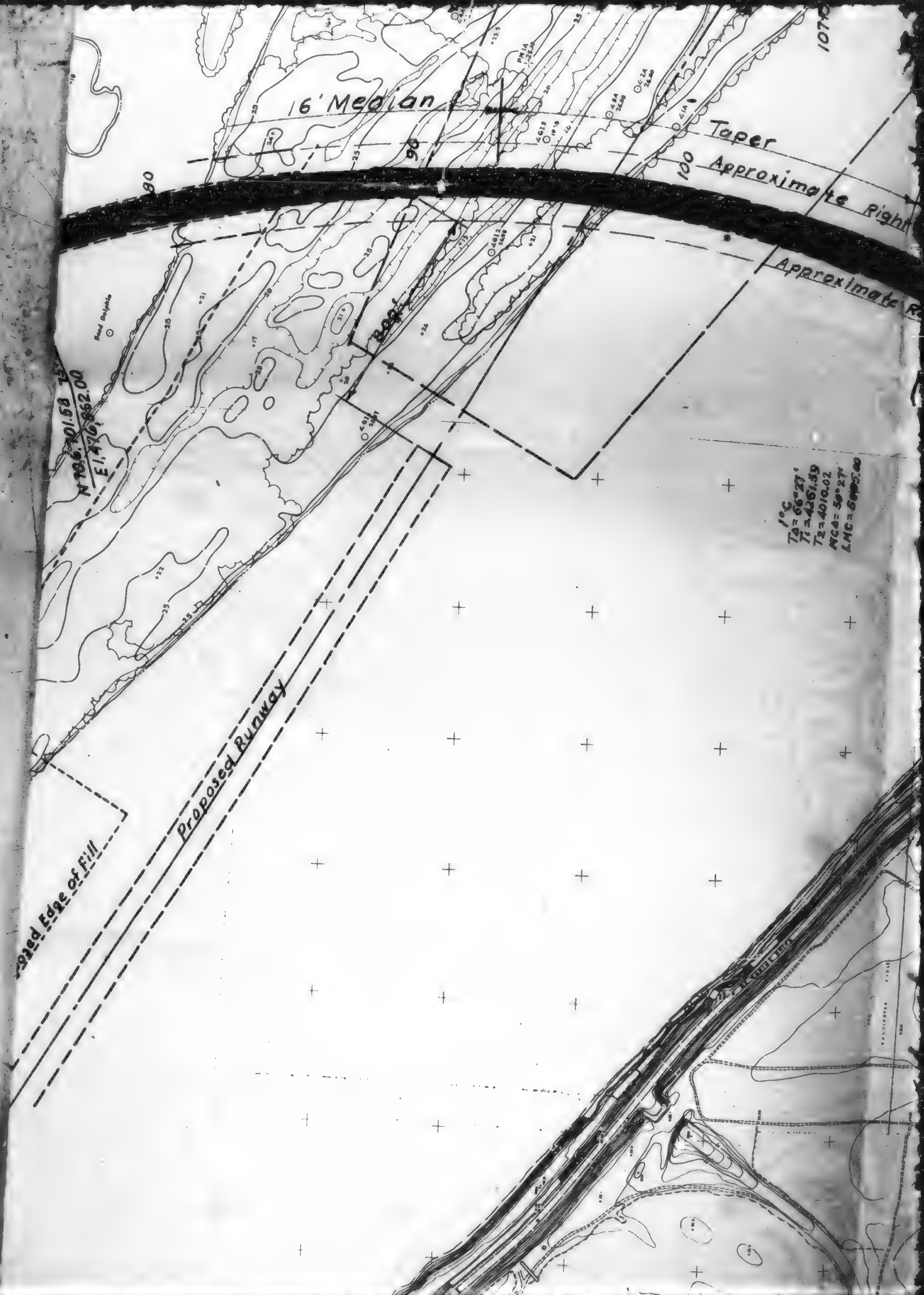

701,000
703,000
1,478,000
48' Median
ht-of-way
e Right-of-way
120

ELLSWORTH ELEMENTARY SCHOOL
WASHINGTON STATE HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS
OLYMPIA, WASHINGTON
CLARK COUNTY
P.S.H. NO. 1 (FAI 205)
COLUMBIA RIVER TO JCT. PSH. NO. 1
MAP NO. S-76
SECTION: COLUMBIA RIVER TO MILL PLAIN RD.
SCALE 1" = 100'
SHEET 1 OF 7 SHEETS
CLARK COUNTY
N

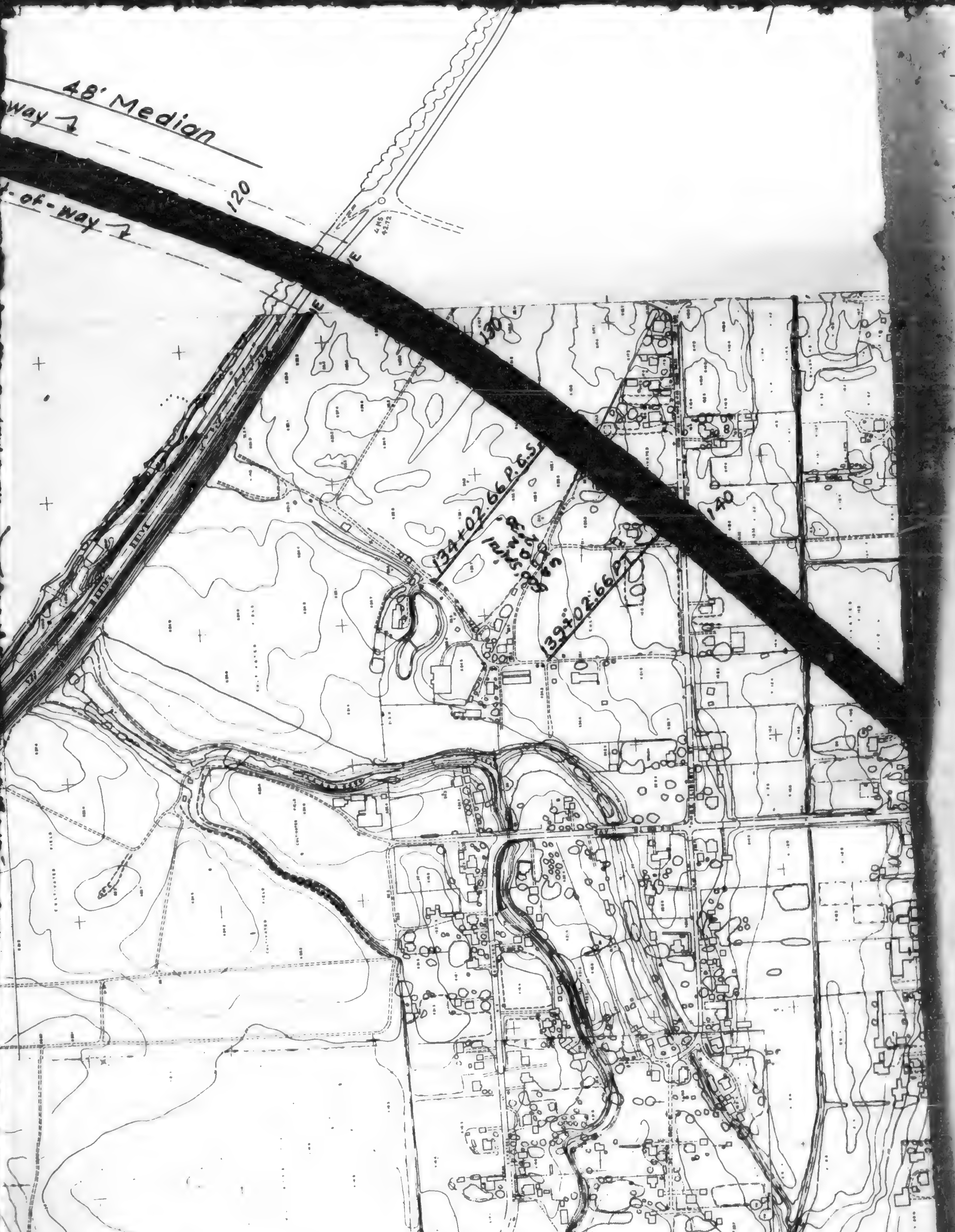



N 711,146.84
E 1,475,456.37
N 710,453.43
E 1,475,548.60
118+46.68 P.T. Wash.
101+46.87 P.O.C. Wash.
35+25.18 P.O.C. Ore.
Washington
Oregon
COLUMBIA
RIVER
N 710,001.60
E 1,475,555.60
39+74.94 P.I.
40
N
0°45'C
17°06'52.3"
9.53'

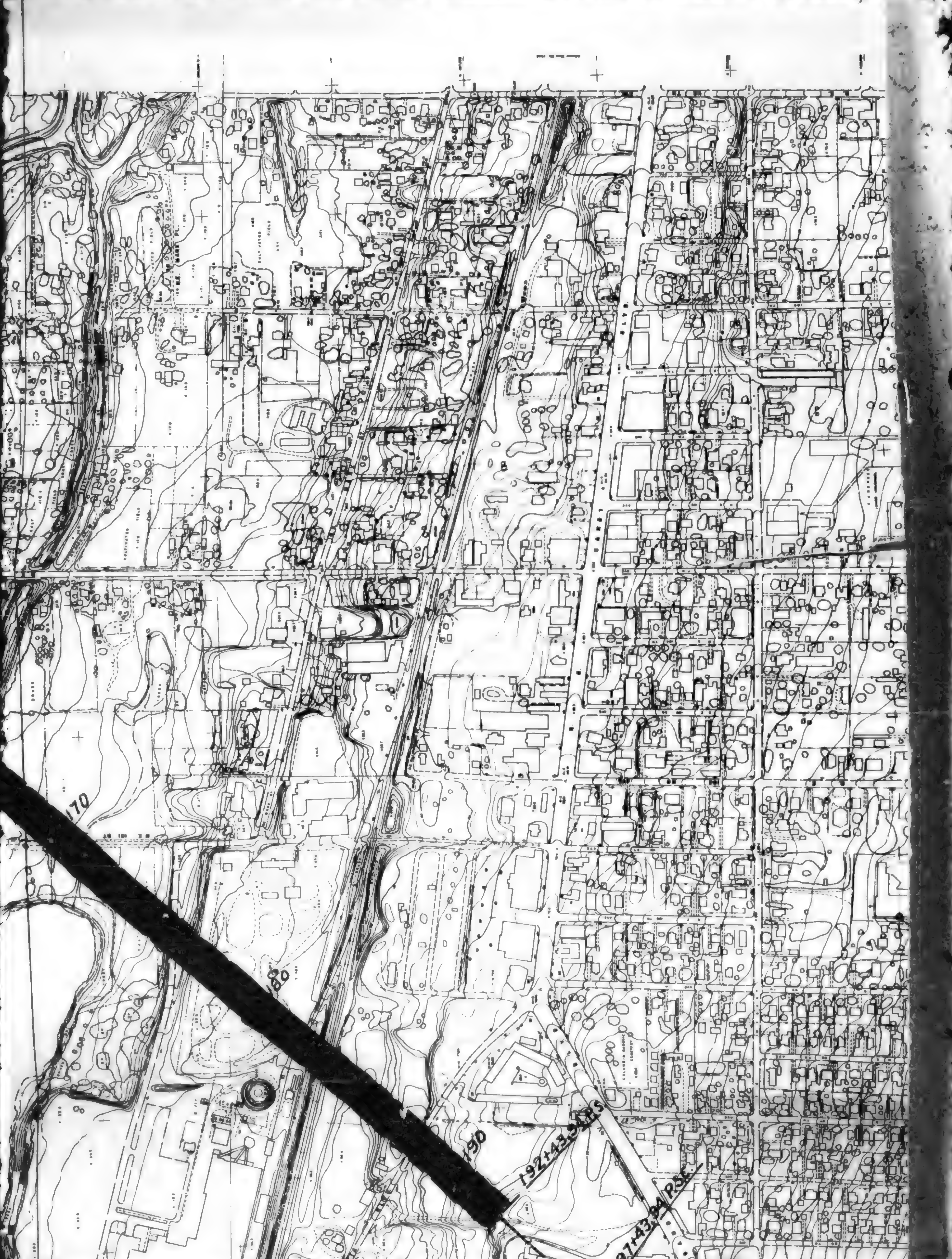

N
Scale:- 1"=400'
N710,001.60 / E1,475,555.60
397
SAND ISLAND
0°45'C
Δ=17°06'52.3"
T=1149.53
51+07.95 P.T.
N708,936.28 / E1,475,987.46
50
60
70
65+07.66 P.S.
N707,638.55 / E1,476,513.54
1000' spiral
a=0.1
S=5°00'
Sand
Pro

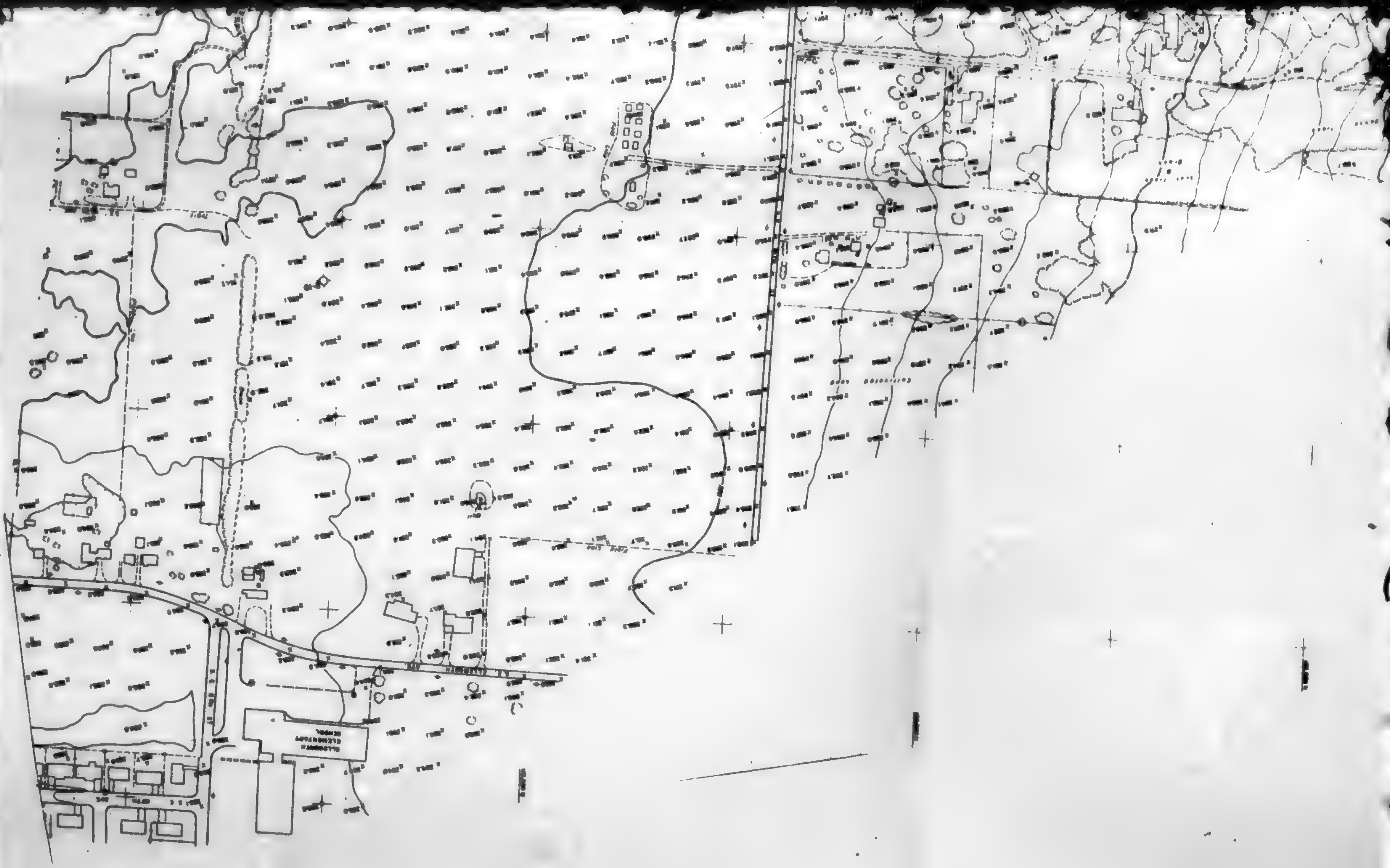


16' Median
Taper
Approximate Right
Approximate R
80
90
100
107
Bag
N 706,301.58
E 1,476,862.00
Head Dolphin
1°C
TΔ= 66°27'
T1= 4261.39
T2= 4010.02
MCΔ= 50°27'
LMC= 6005.00
Proposed Runway
posed Edge of Fill
25
20
21


48' Median
-way
-of-way
120
130
140
134+02.66 P.C.S.
39+02.66 P.T.

150
160
170
180
SLOUGH


170
180
190
192+43.84 PS
197+43.84 PSE



OREGON STATE HIGHWAY DEPT.
URBAN DESIGN OFFICE

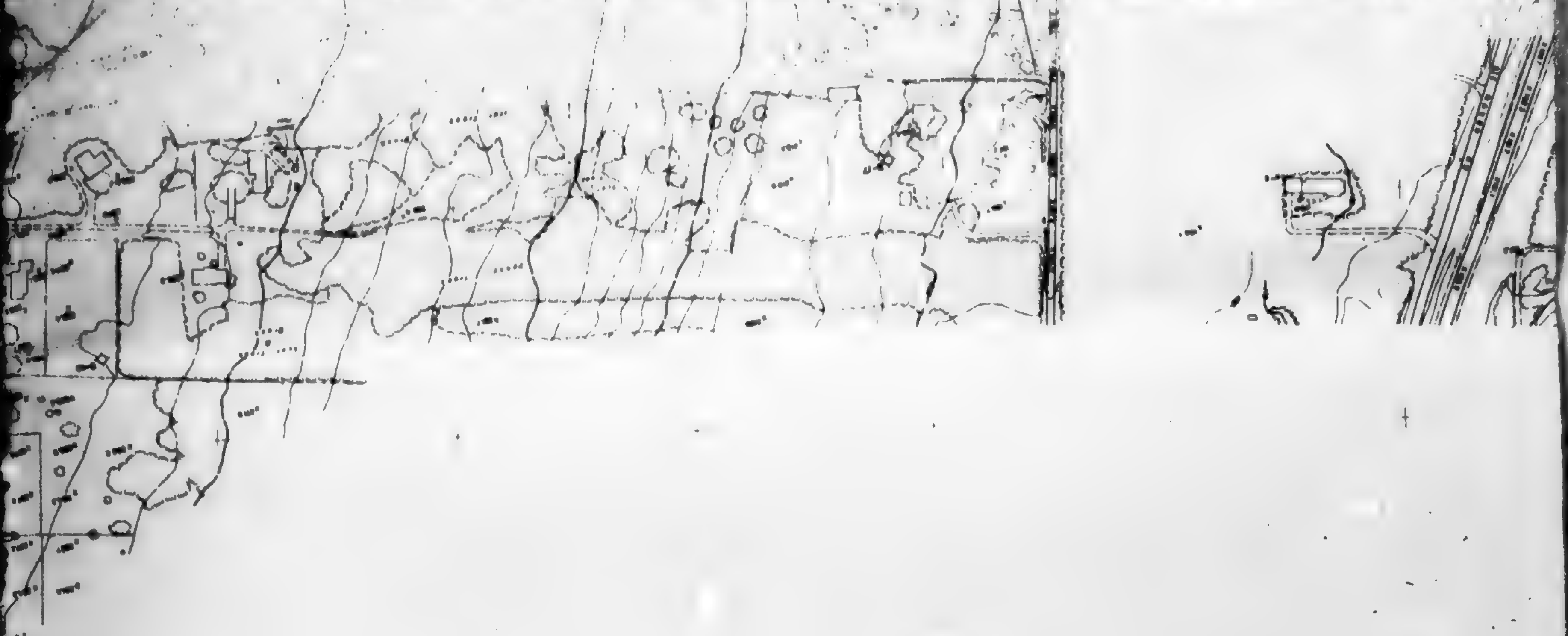
Map coordinates shown are ORE. NO. ZONE

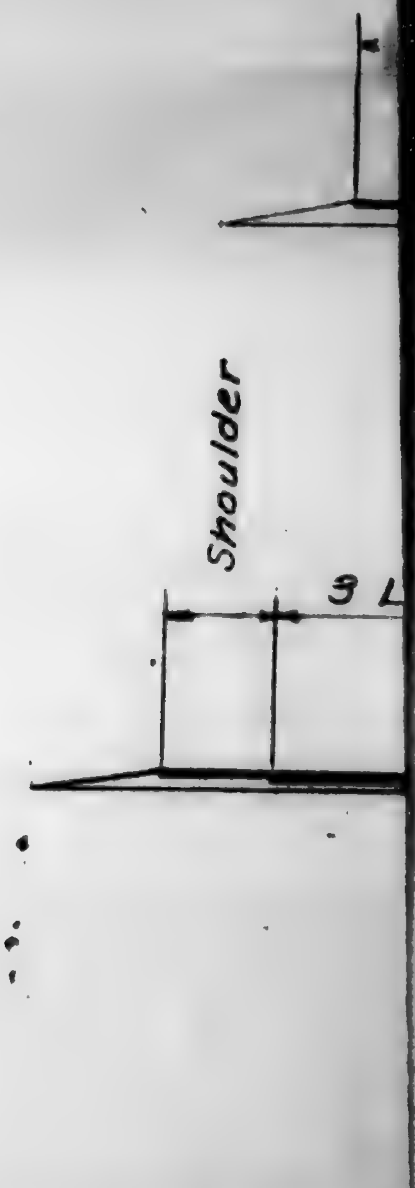
PROJECT: I205 Frwy.

SECTION: Columbia River Crossing

STATIONS: Wash. to Ore   Scale 1" = 400'

DATE: Feb 23, '68   BY: Bandy

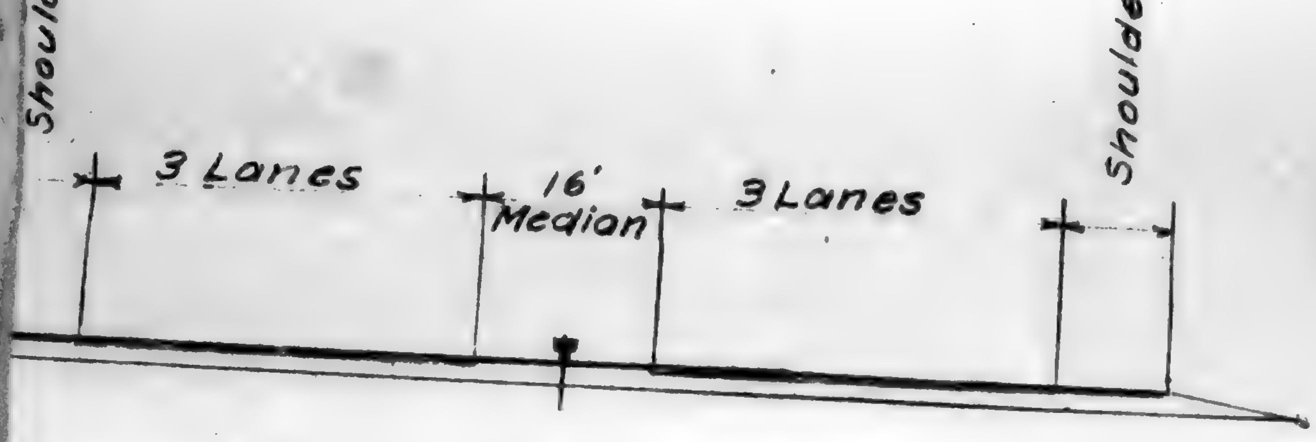



Shoulder
9 L

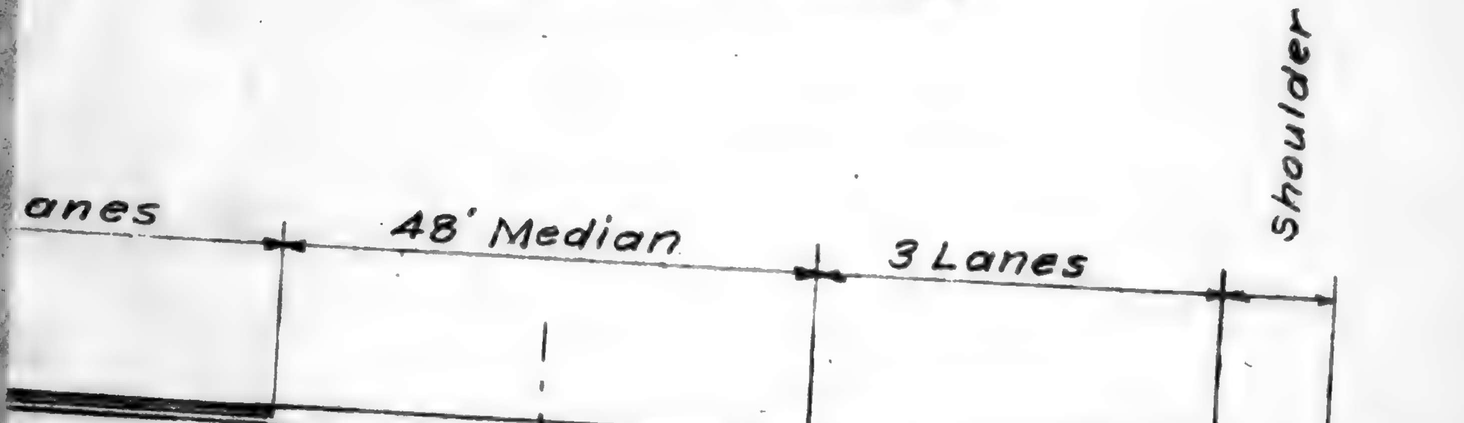
WAY DEPT.
FFICE
ate ORE. NO. ZONE

Crossing
ale: 1" = 400'
Bandy

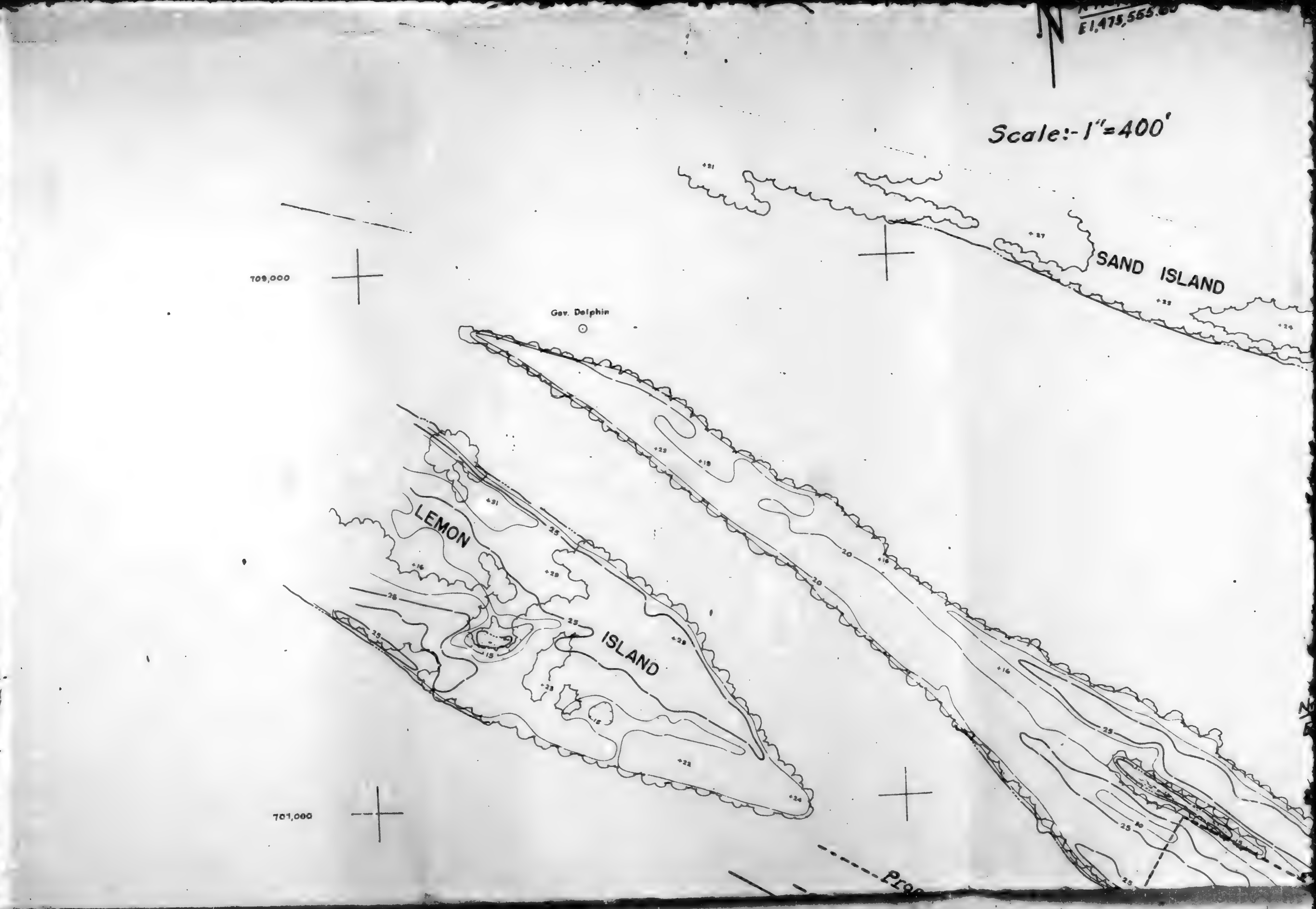
Washington
Oregon
COLUMBIA

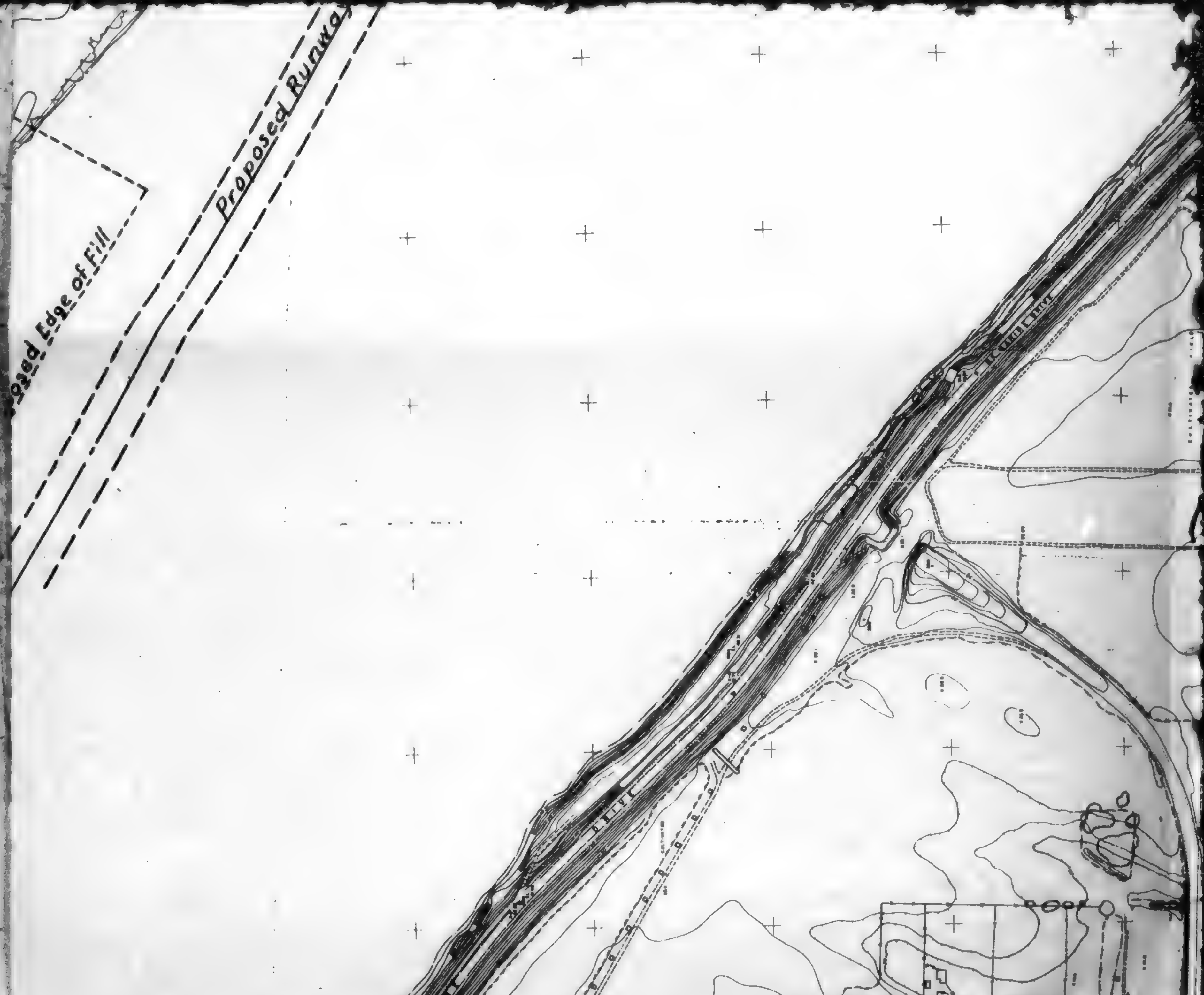

Shoulder
3 Lanes
16'
Median
3 Lanes
Shoulder

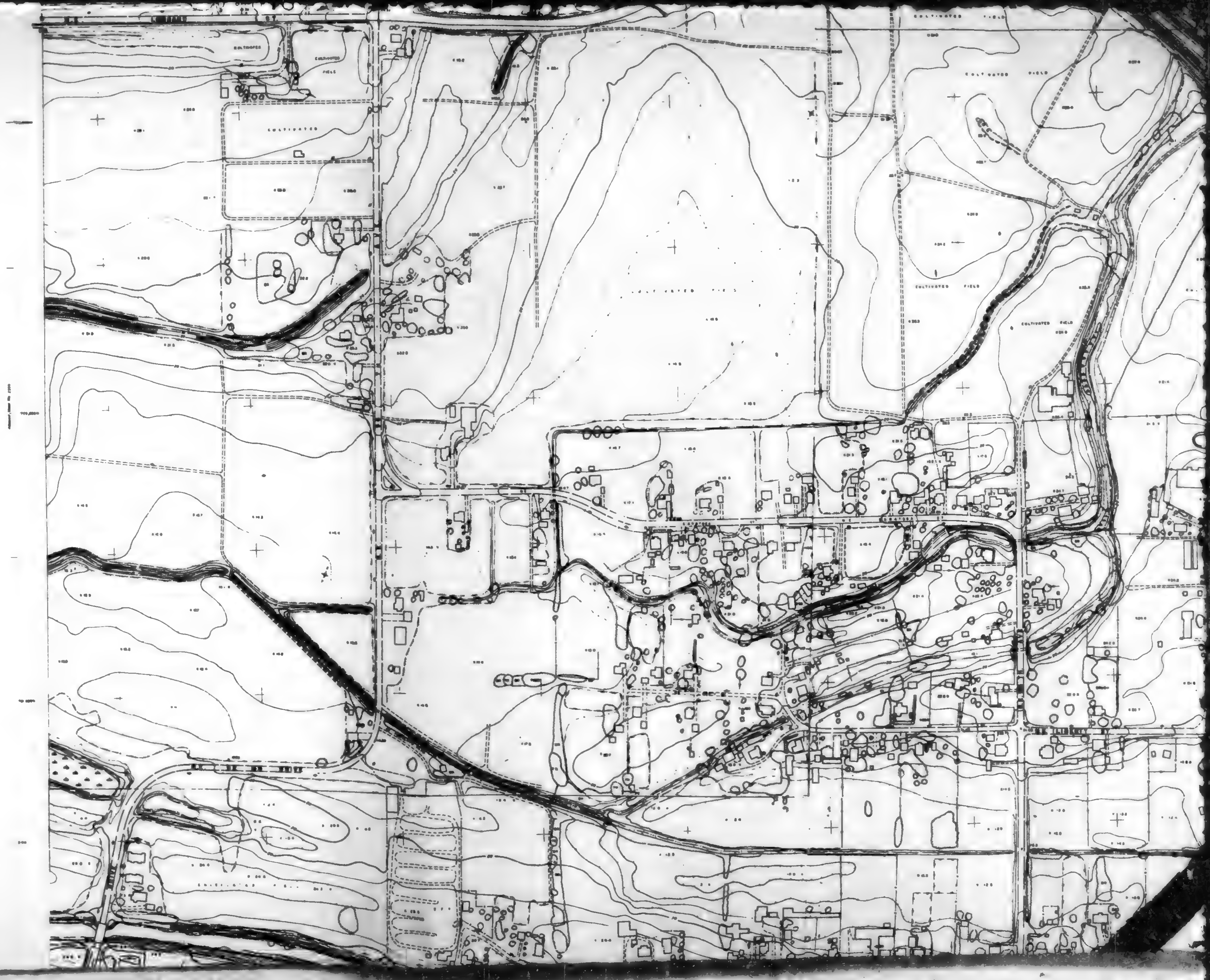
Typical Section 16' Median

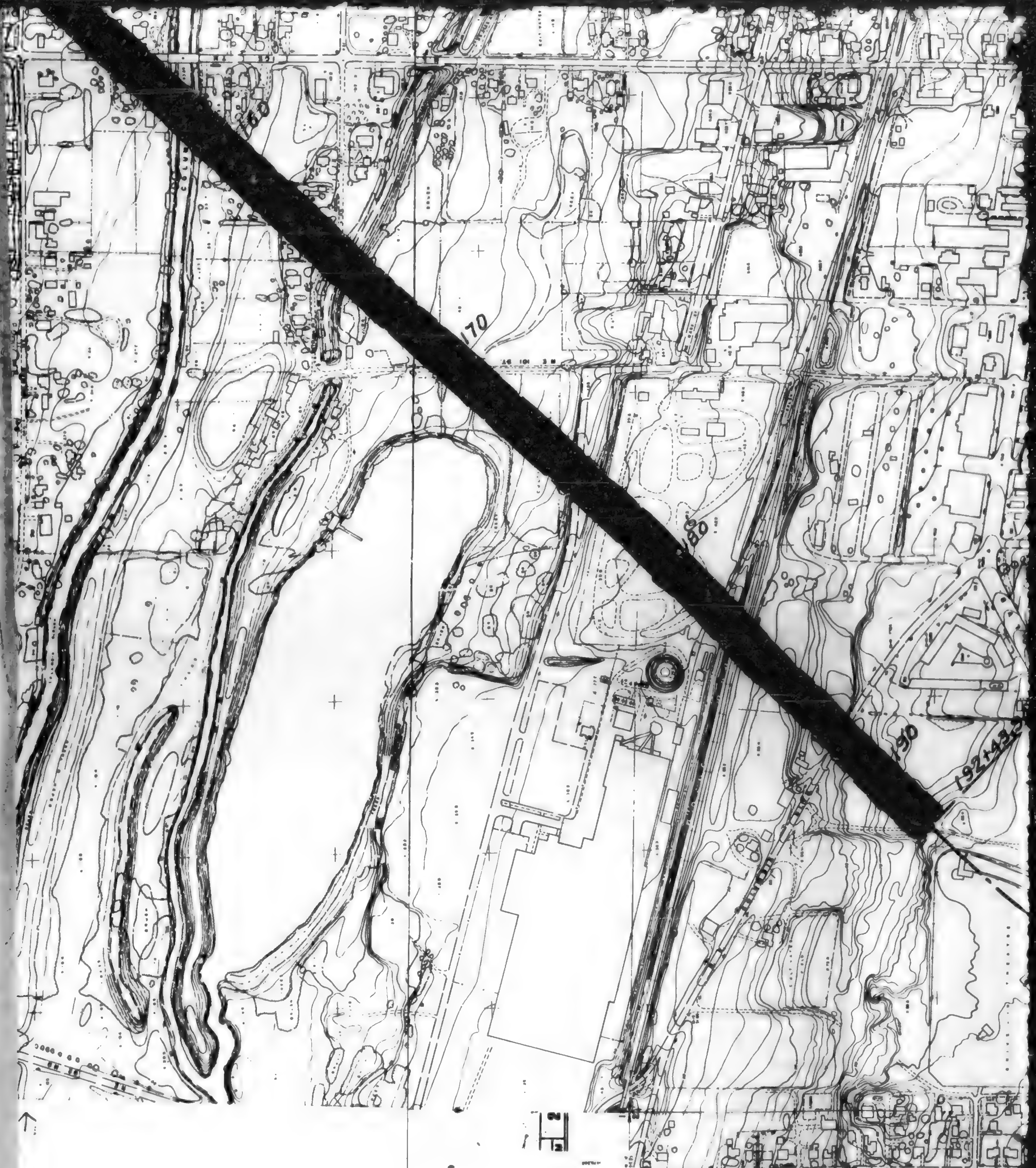

anes
48' Median
3 Lanes
Shoulder

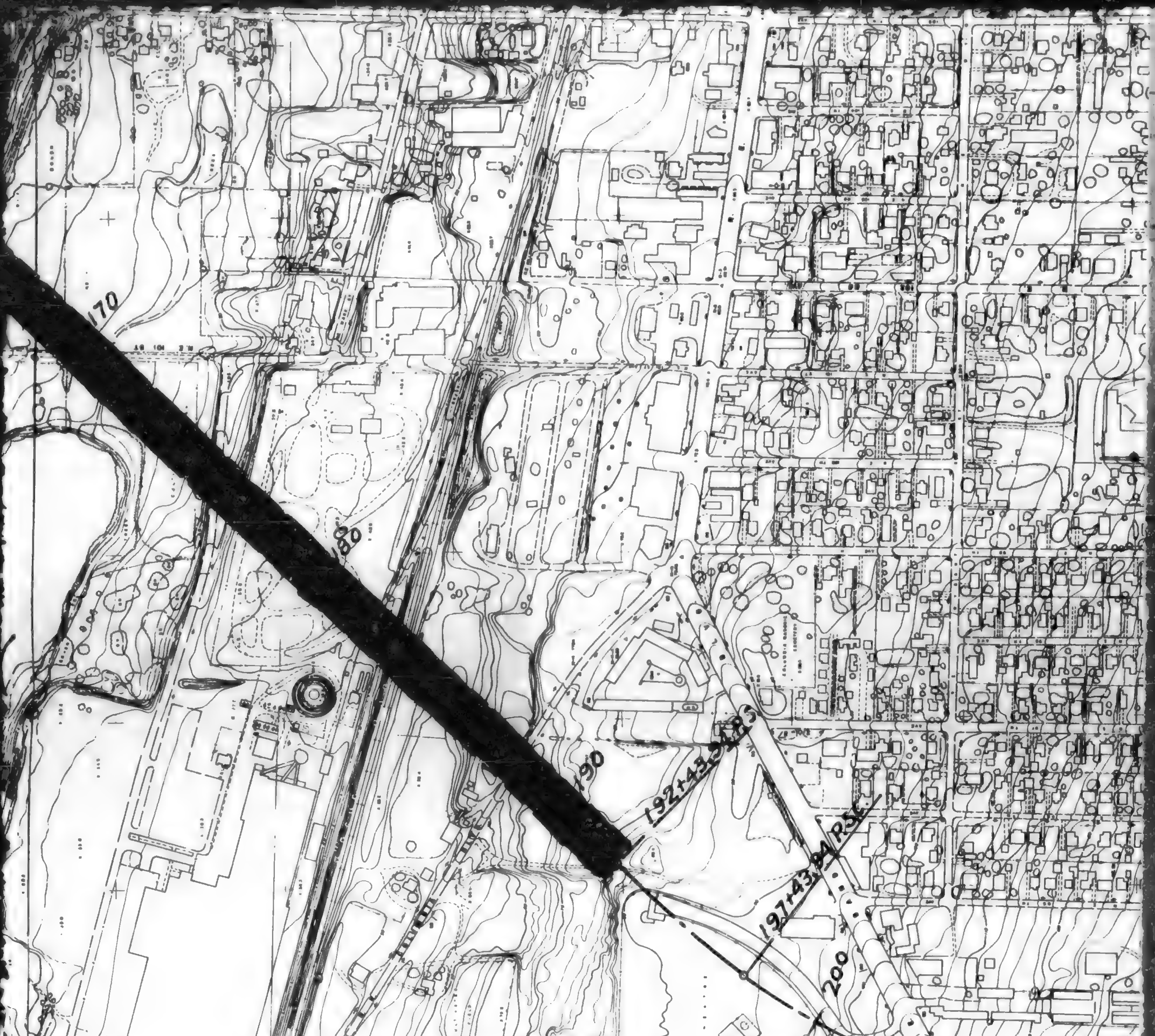
Typical Section 48' Median

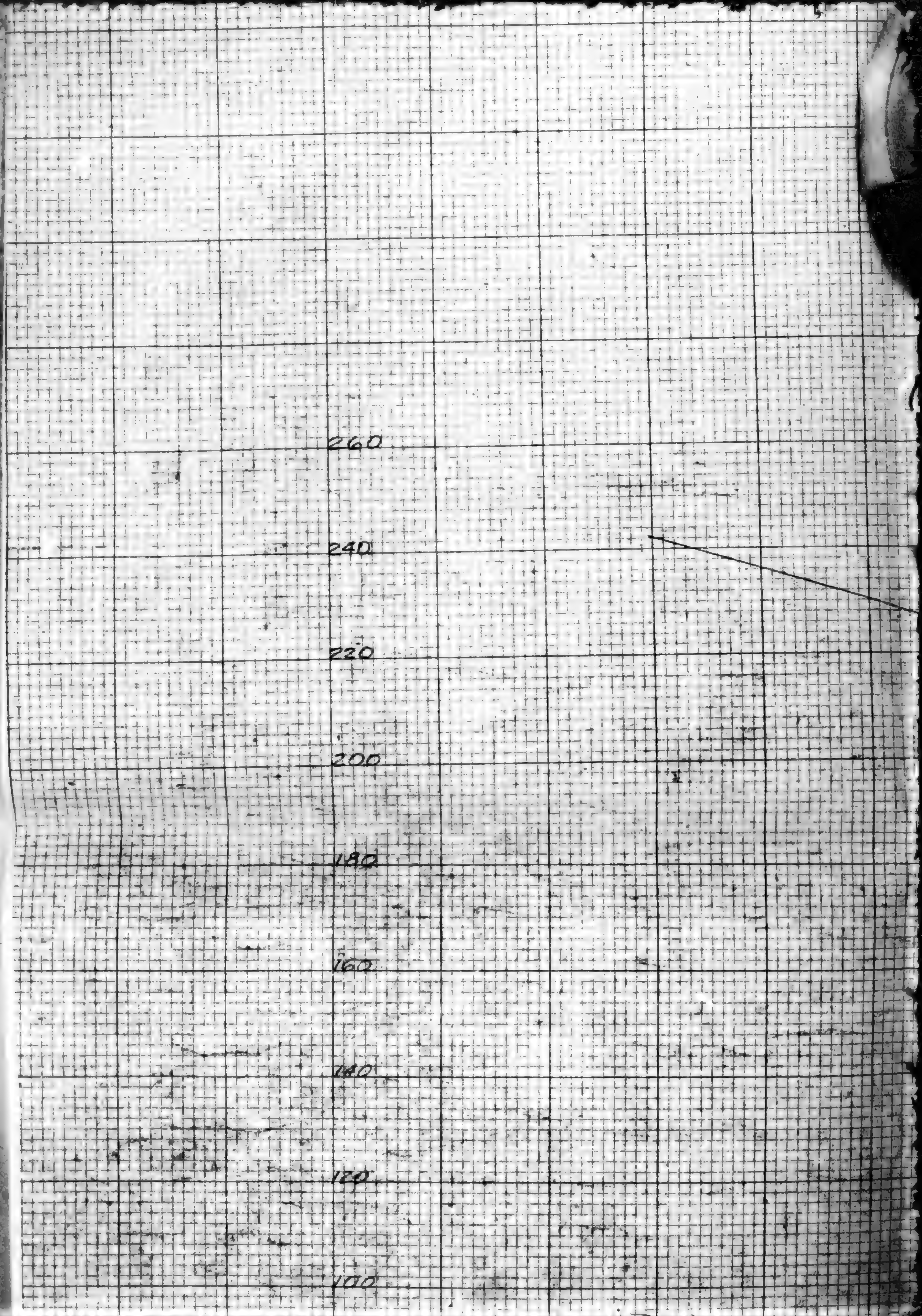

E1,475,565.60
Scale:- 1"=400'
SAND ISLAND
Gov. Dolphin
709,000
701,000
LEMON
ISLAND
+21
+27
+22
+24
+23
+19
+16
20
25
+31
+29
+15
+28
15
+22
+24
Pro

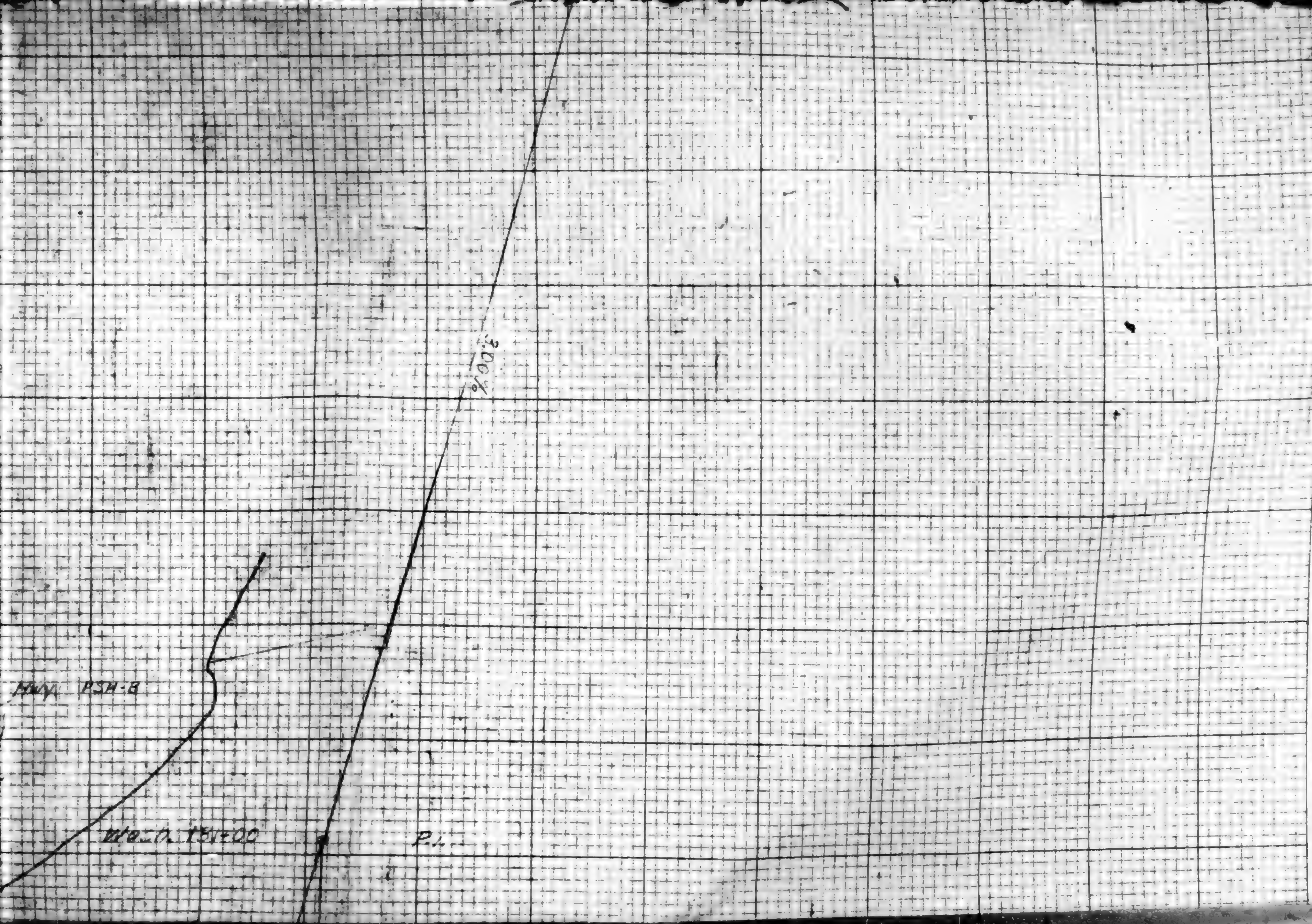

Proposed Runway
osed Edge of Fill


CULTIVATED FIELD


160
170
180
190
192+43

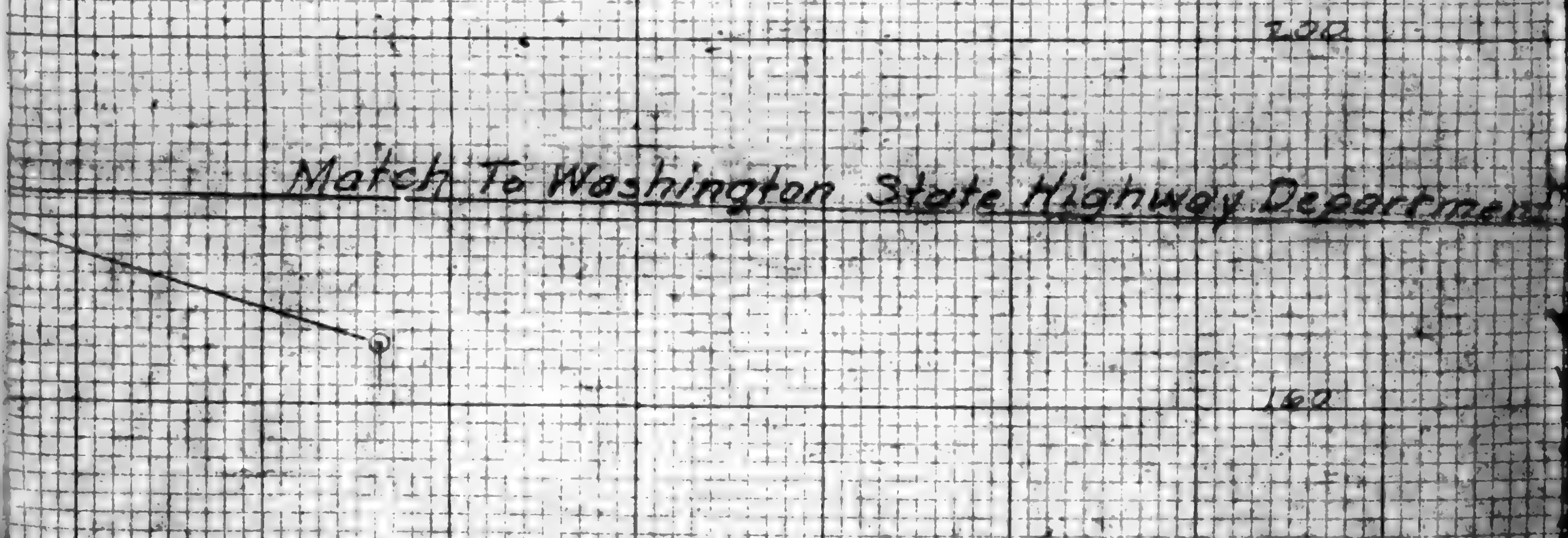

170
180
190
192+43.5 PS
197+43.84 PSC
200


260
240
220
200
180
160
140
120
100



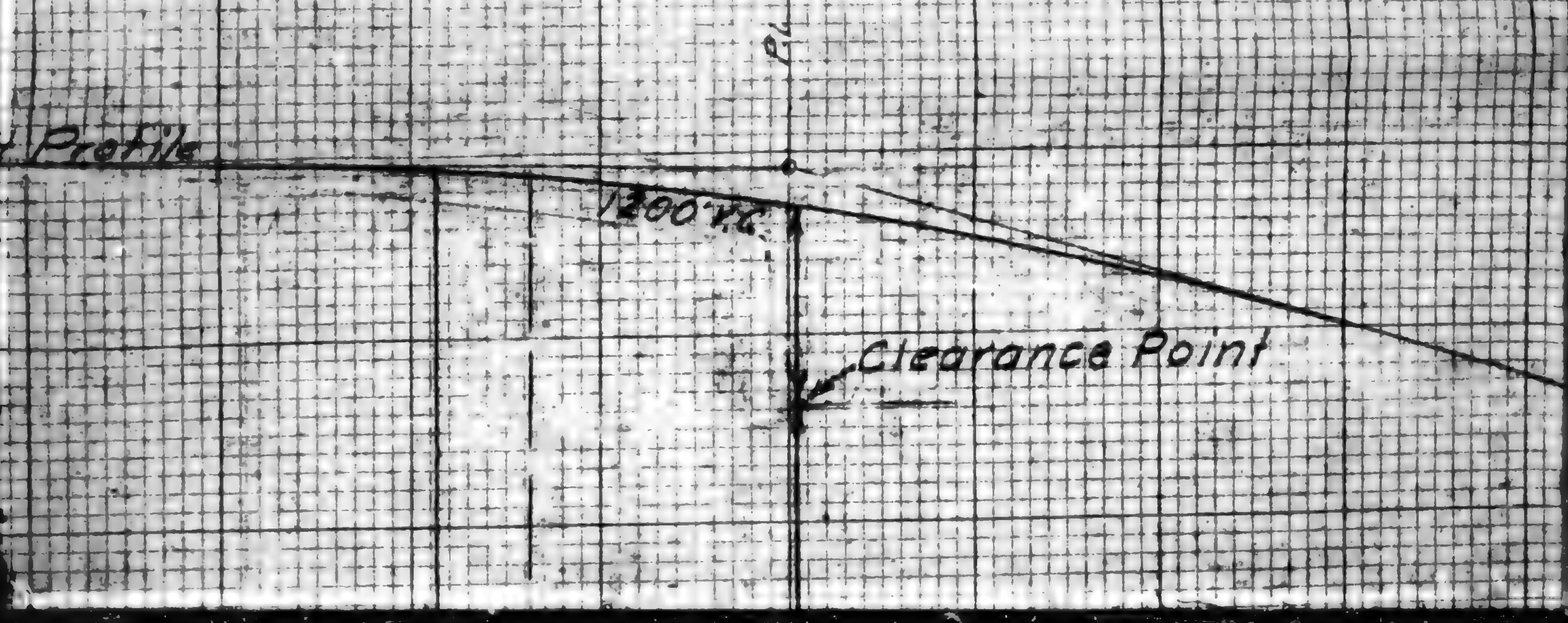
KEUFFEL & ESSER CO.

K+E STANDARD ⊛ CROSS SECTION 10X10 TO THE INCH



Match To Washington State Highway Department

KEUFFEL & ESSER CO.
MADE IN U.S.A.


P.I.
Profile
1200' V.C.
Clearance Point

K+E STANDARD ® CROSS SECTION
10X10 TO THE INCH

KEUFFEL & ESSER CO.
MADE IN U.S.A.

K+E STANDARD ® CROSS SECTION
10X10 TO THE INCH

KEUFFEL & ESSER CO.
MADE IN U.S.A.

K&E STANDARD ® CROSS SECTION
10X10 TO THE INCH

[illegible]
MADE IN U.S.A.

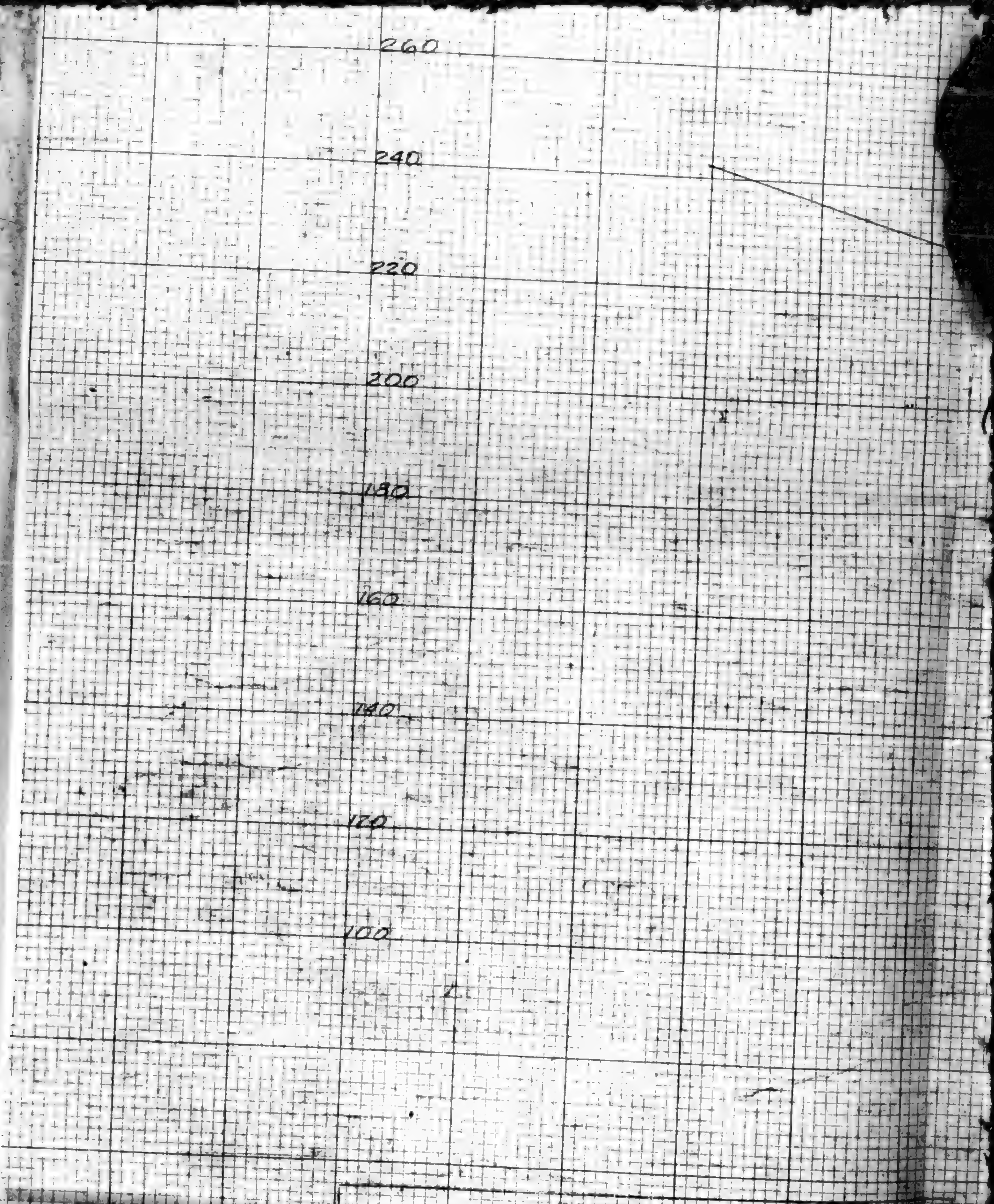
K·E SECTION

KEUFFEL & ESSER CO.
MADE IN U.S.A.

[redacted]

K+E STANDARD ⊕ CROSS SECTION
10X10 TO THE INCH

KEUFFEL & ESSER CO.
MADE IN U.S.A.

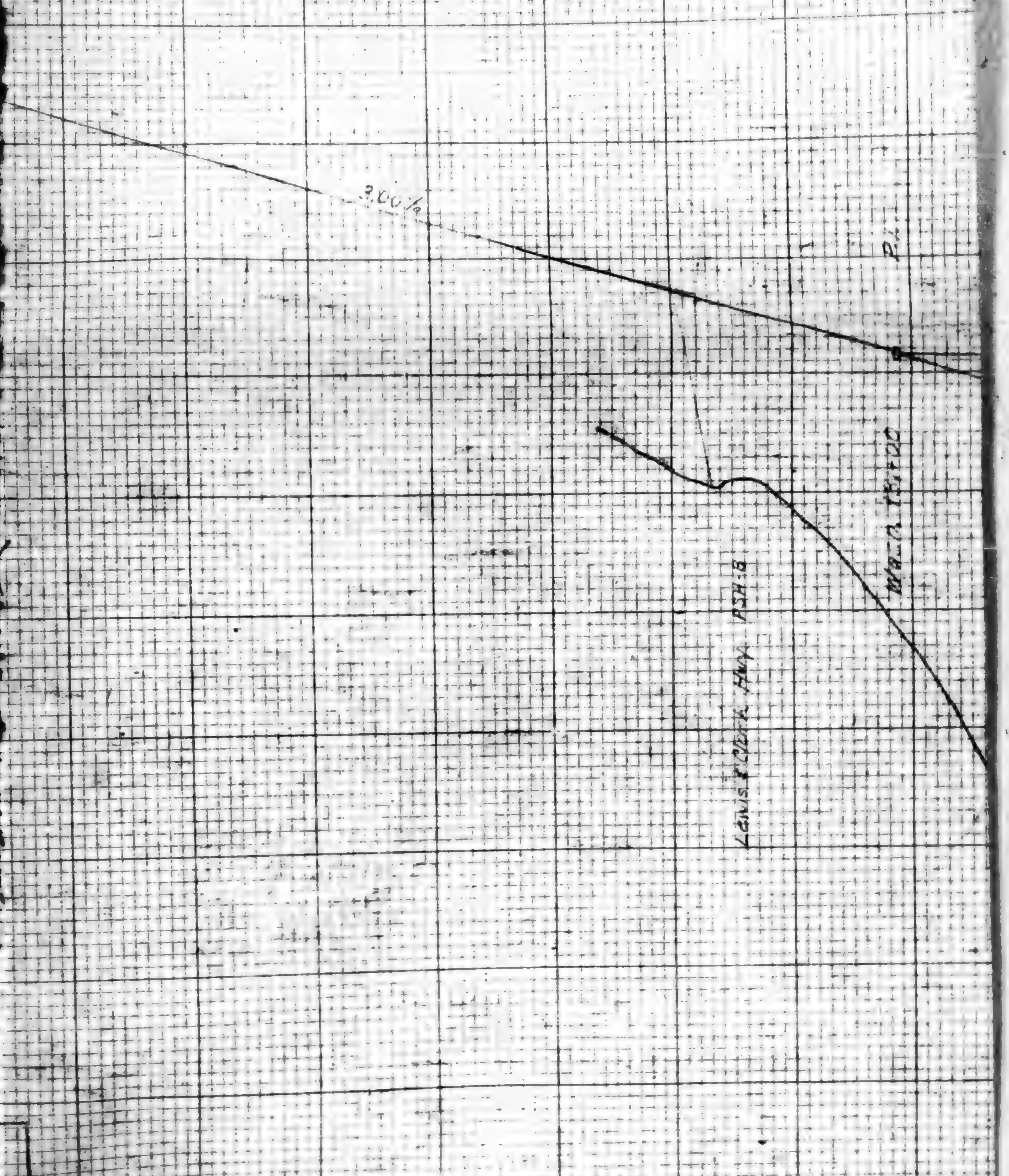


OREGON STATE HIGHWAY DEPT.
URBAN DESIGN OFFICE

PROFILE

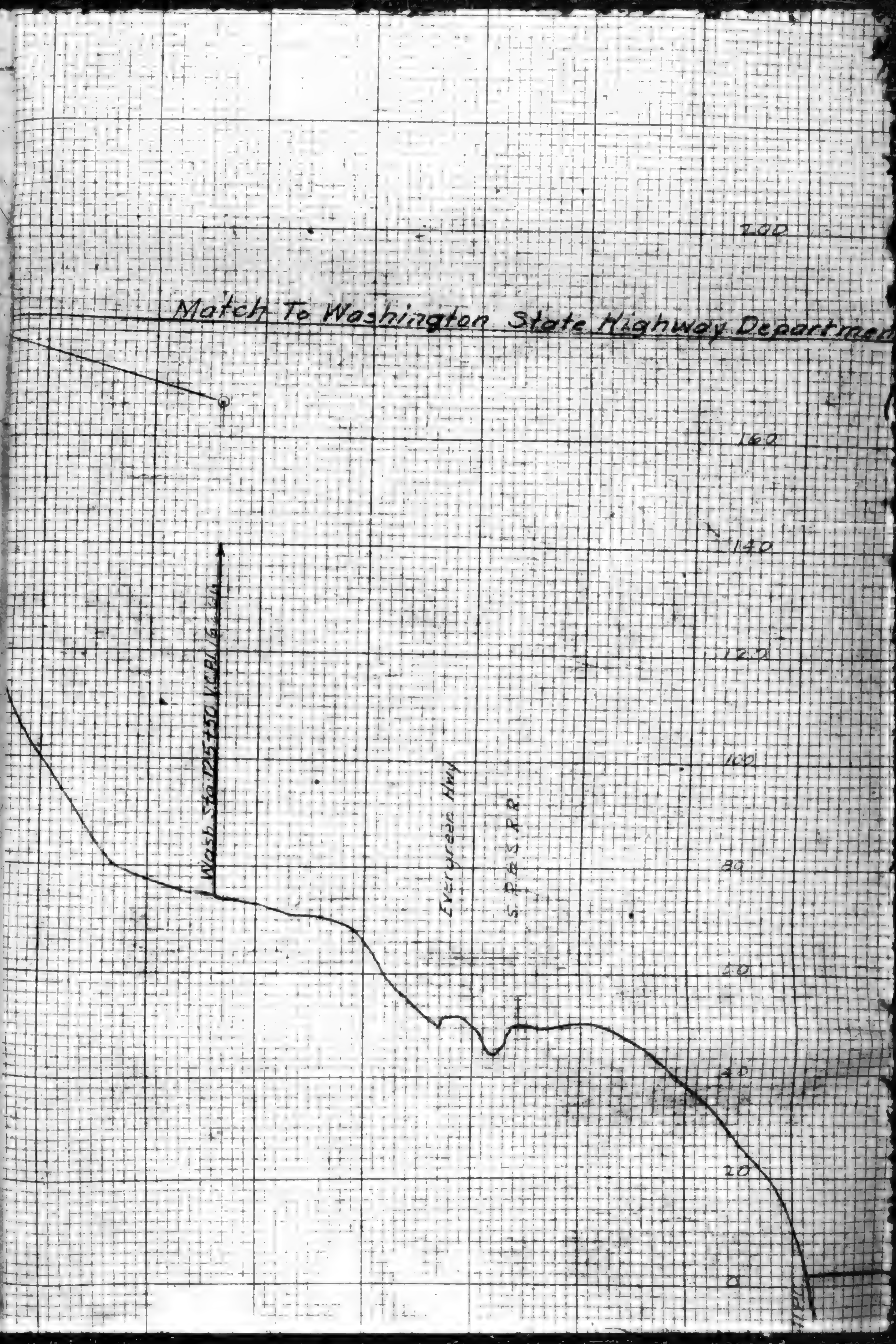
PROJECT: I205 FRWY

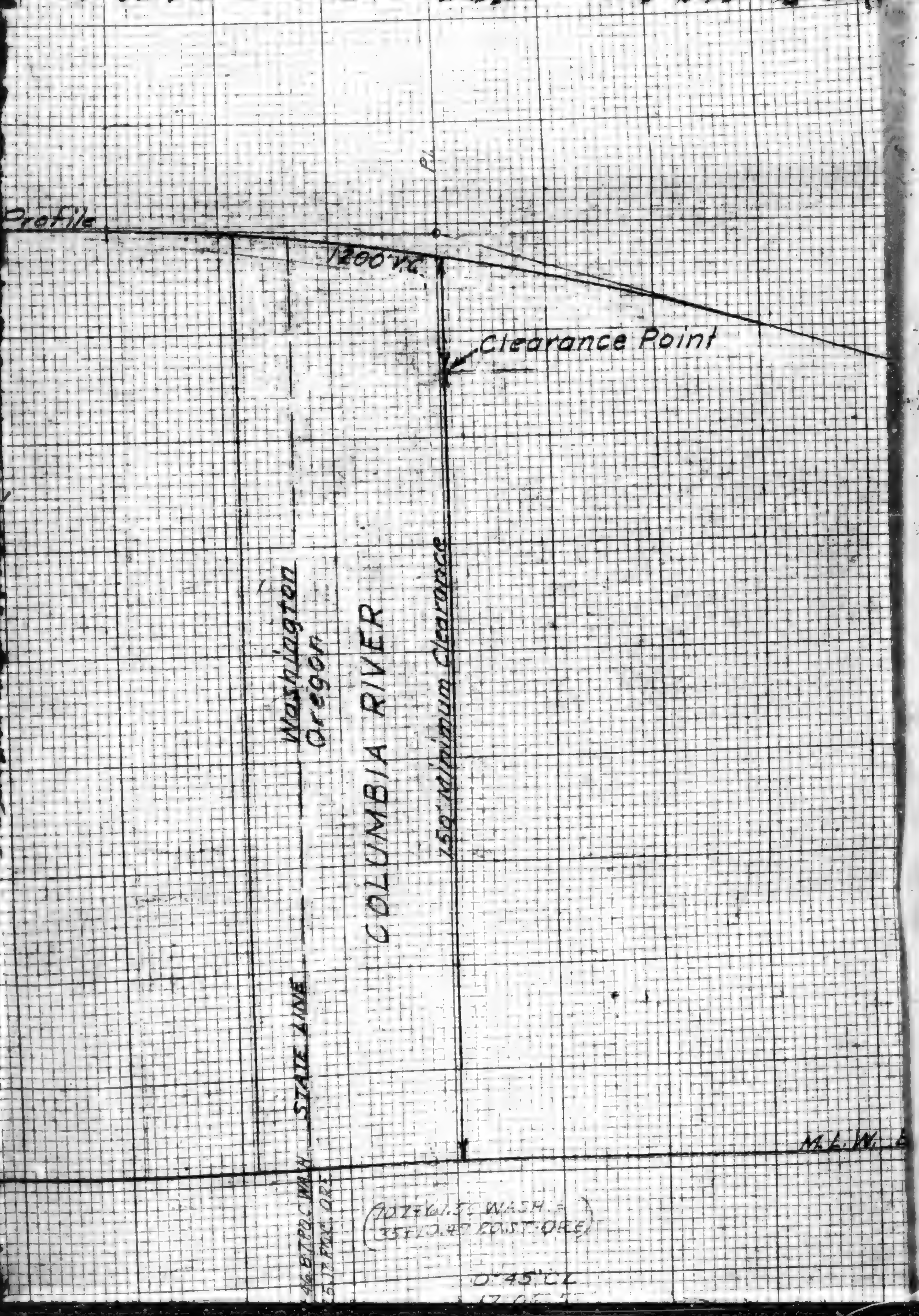
SECTION: Columbia River Crossing

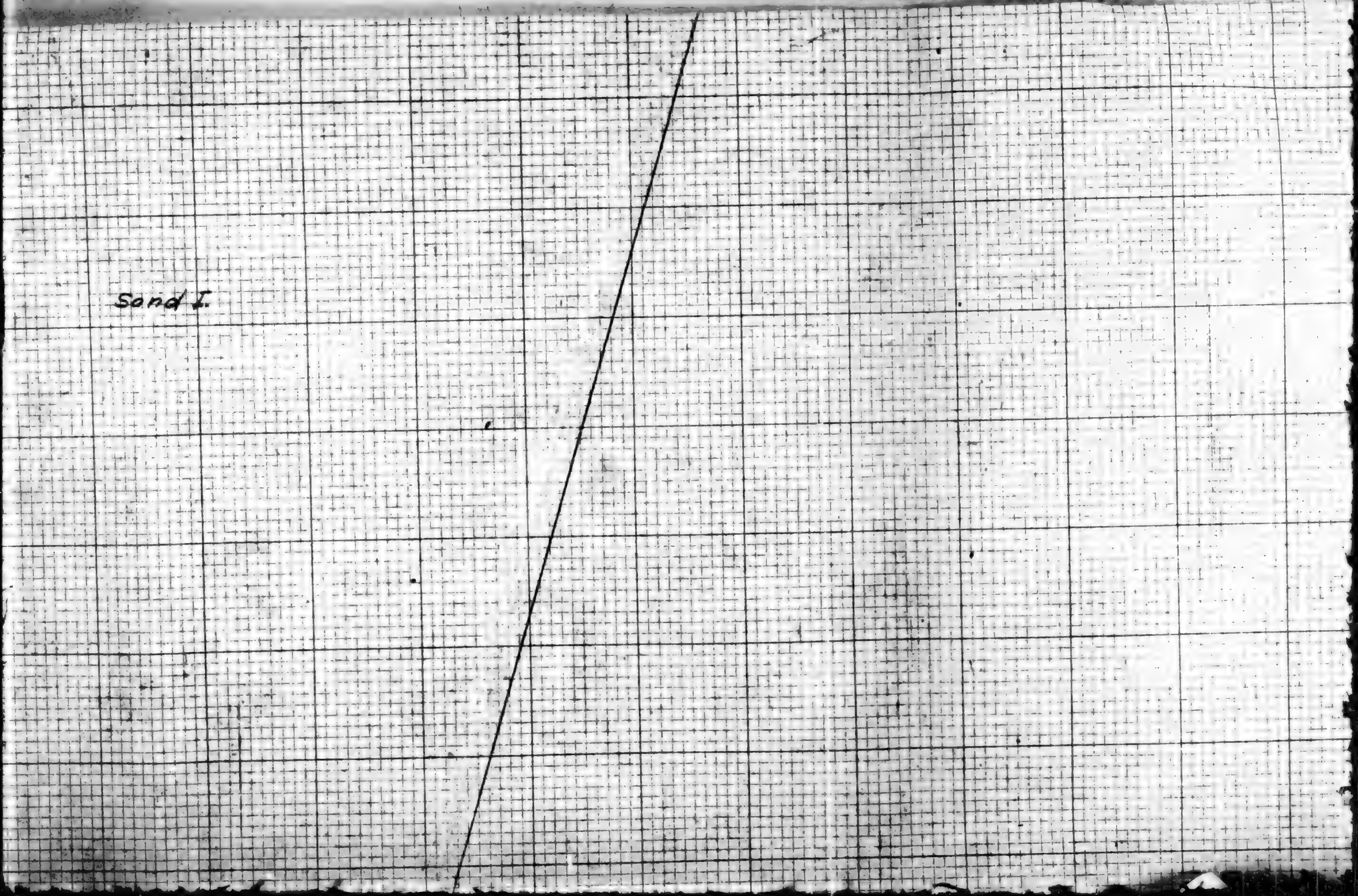

3.00%
P.I.
Lewis & Clark Hwy PSH 8
[illegible]

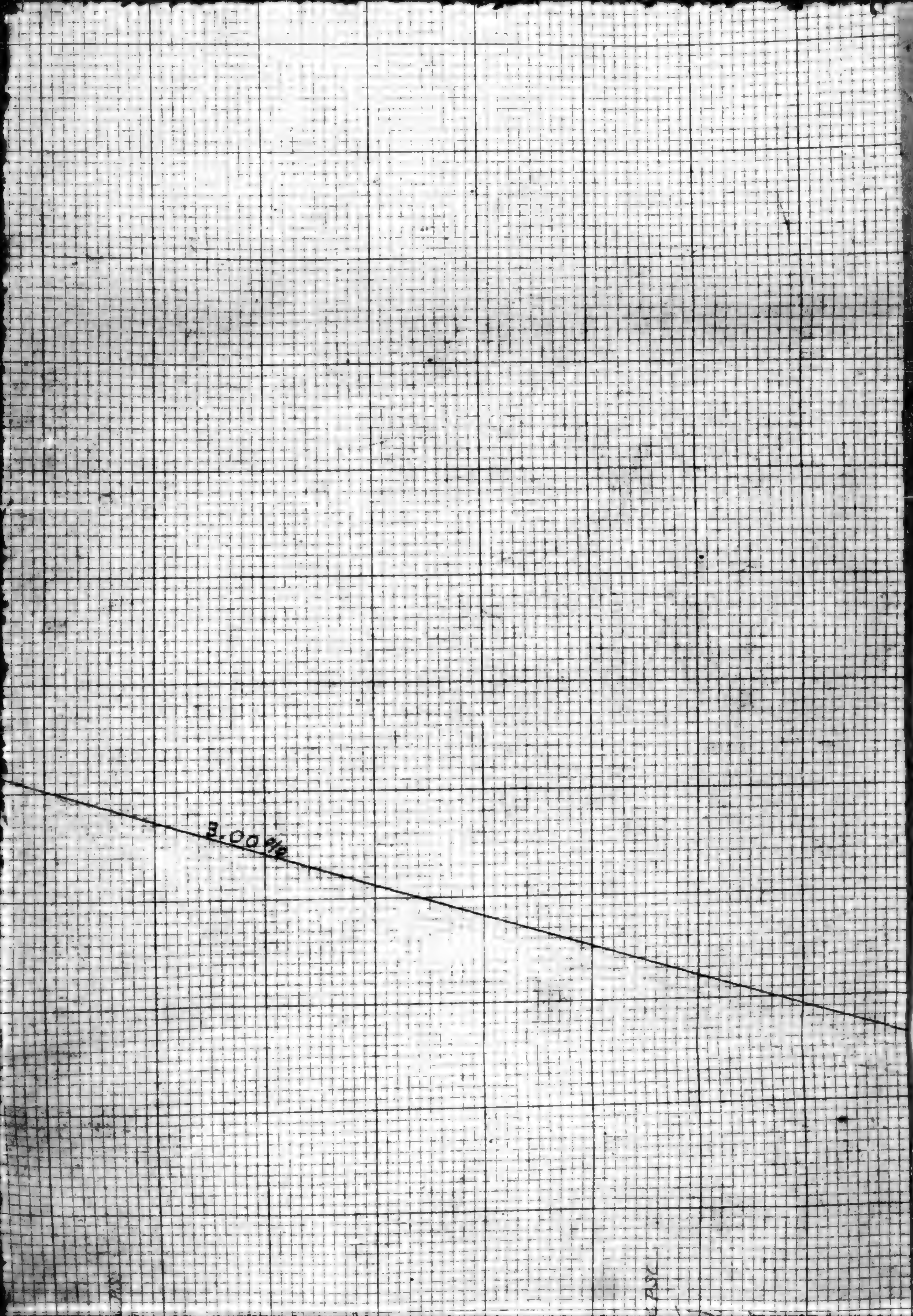
Scale Vert. 1"=20'
Horiz. 1"=200'

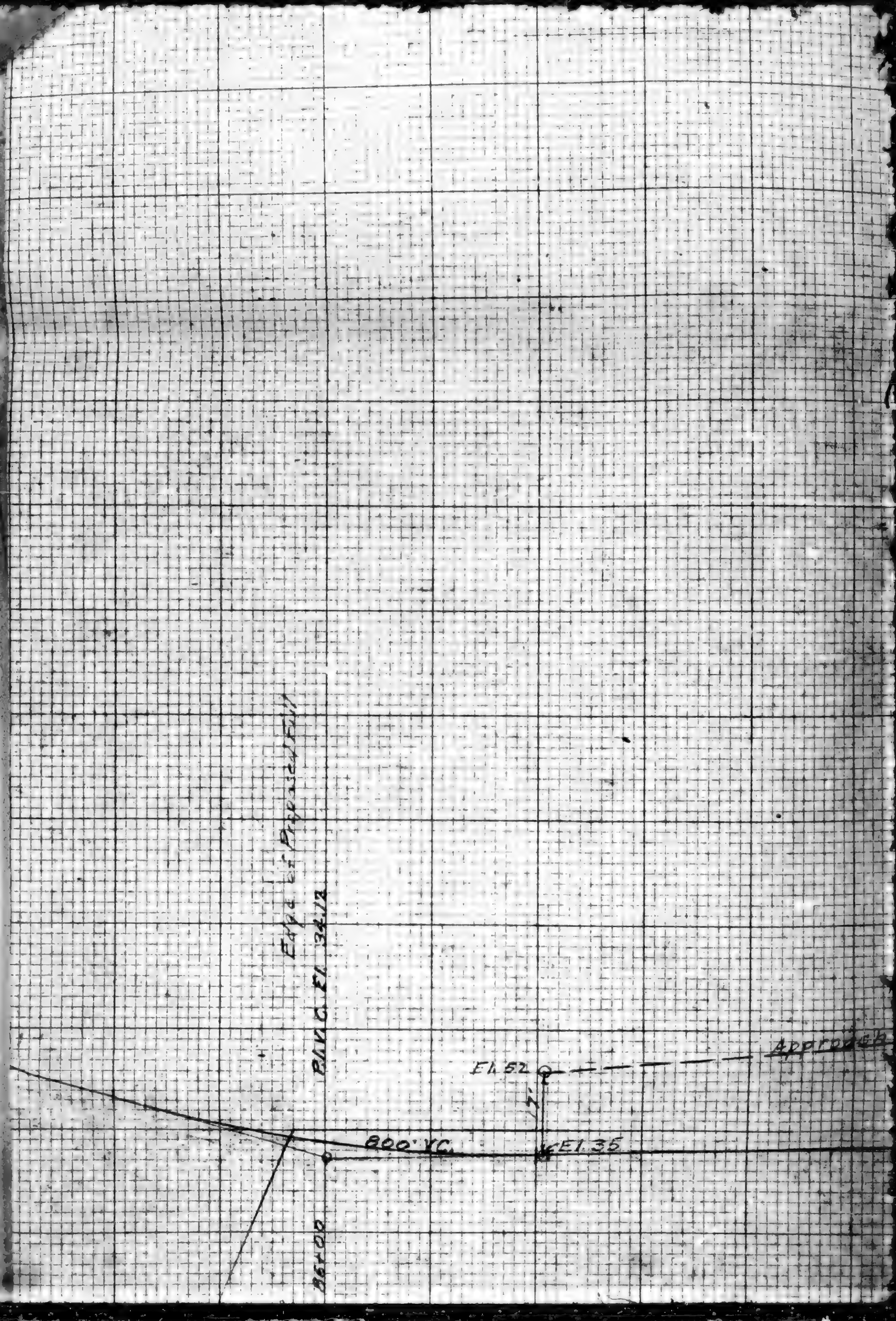
DATUM – U.S.C.&G.S. 1947 Adjustment.

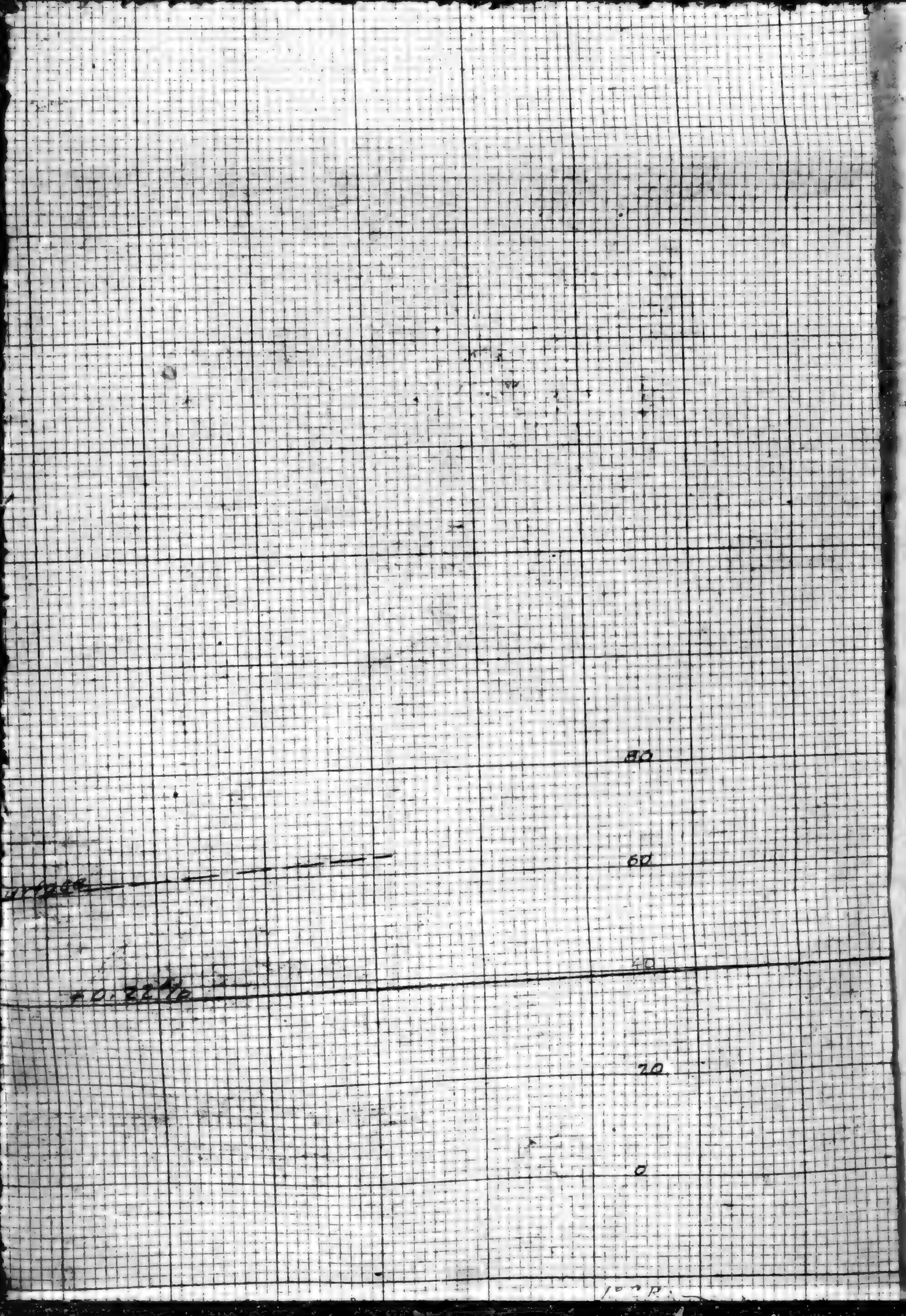

Match To Washington State Highway Departmen
Wash. Sta. 125+50 VCPI Ev. Hy
Evergreen Hwy
S.P.&S.R.R.

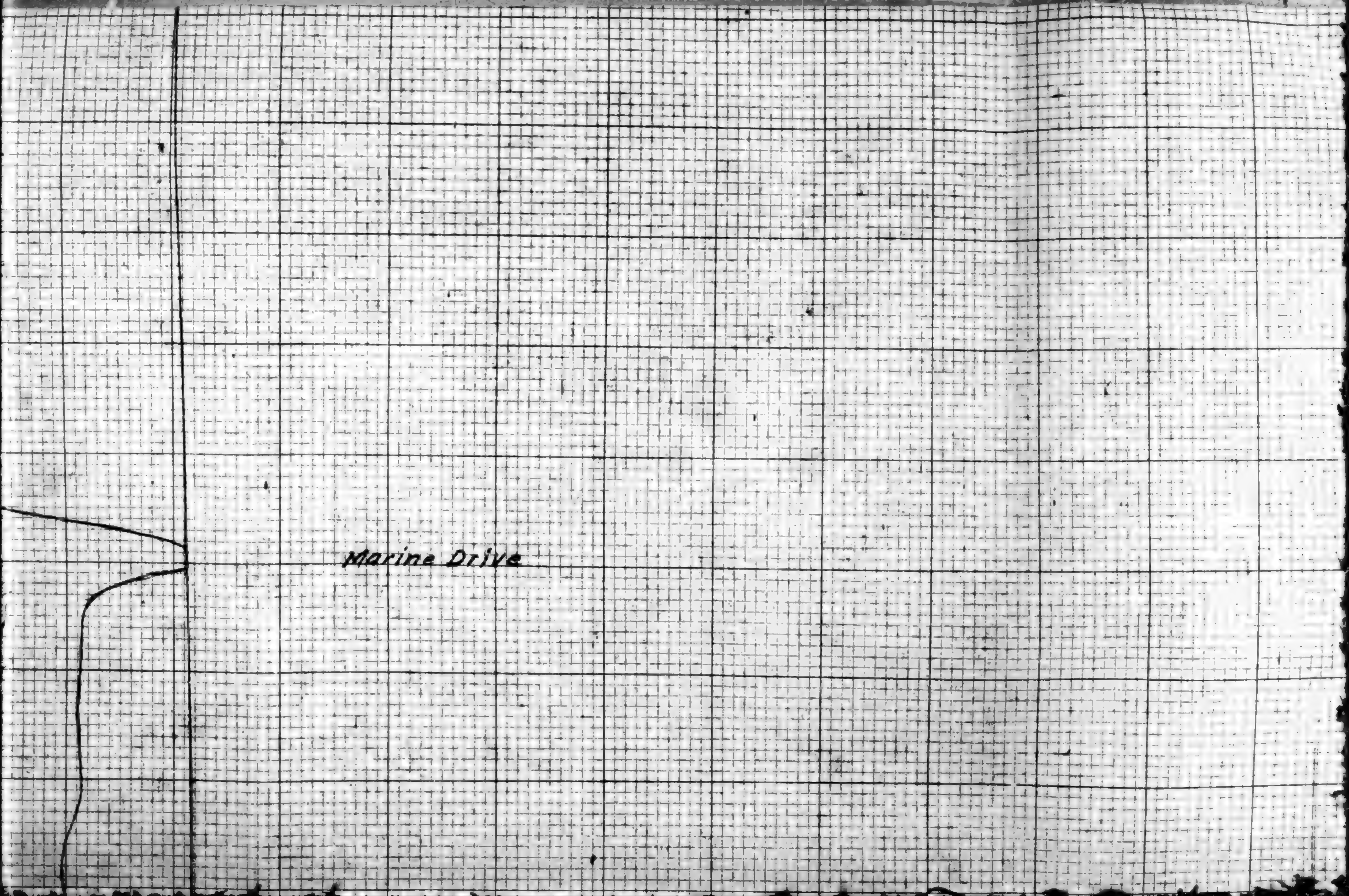

Profile
PI
1200' V.C.
Clearance Point
Washington
Oregon
STATE LINE
COLUMBIA RIVER
150' Minimum Clearance
M.L.W.
46.87 P.O.C. WASH.
51.17 P.O.C. ORE.
(107+61.50 WASH. =
35+0.47 E.O.S.T. ORE.)
0°45' CL

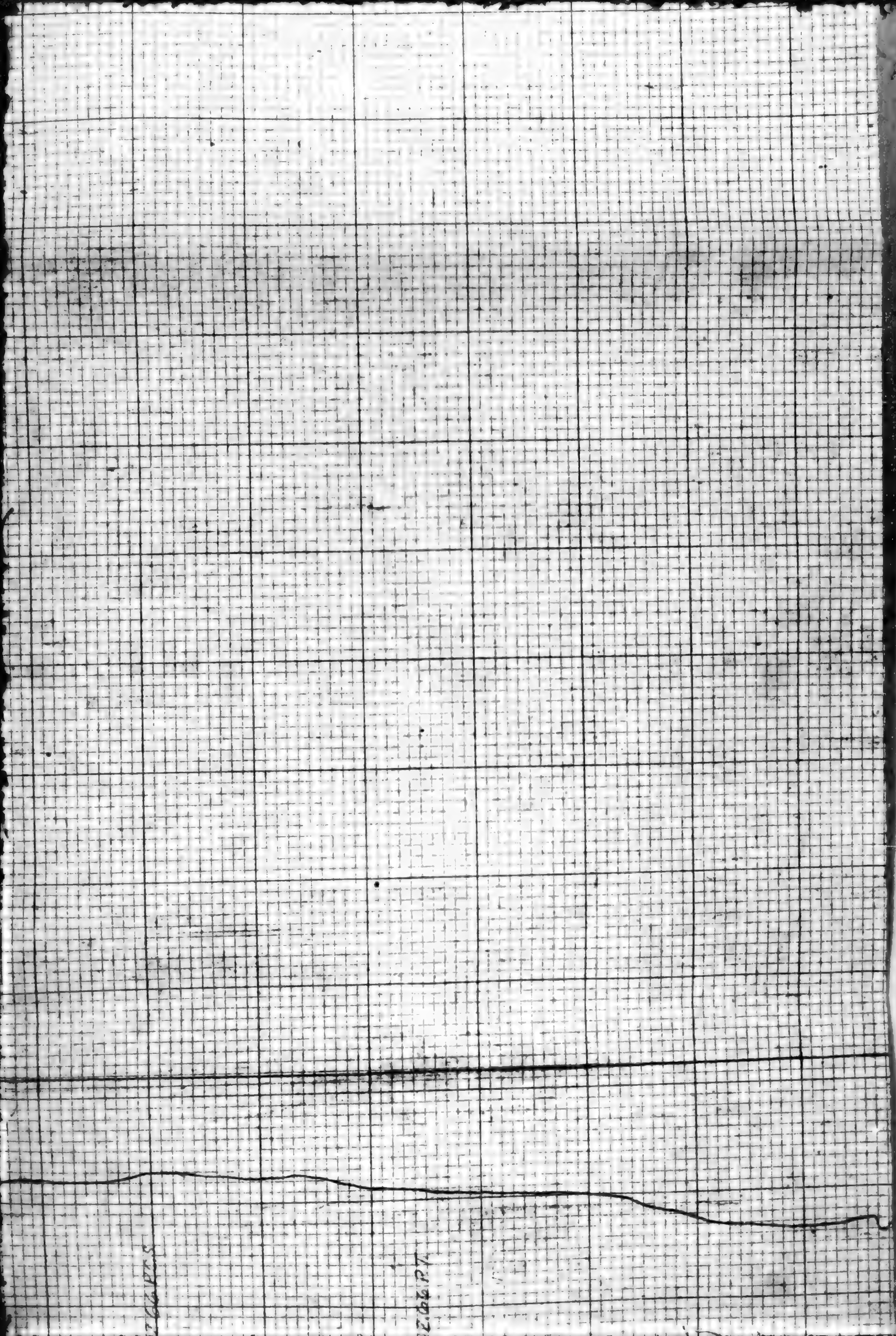

Sand I.

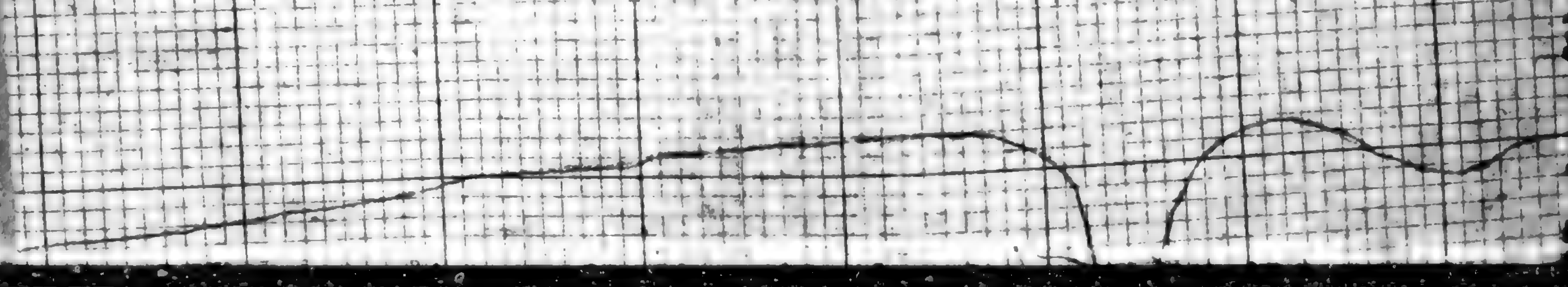

3.00 %

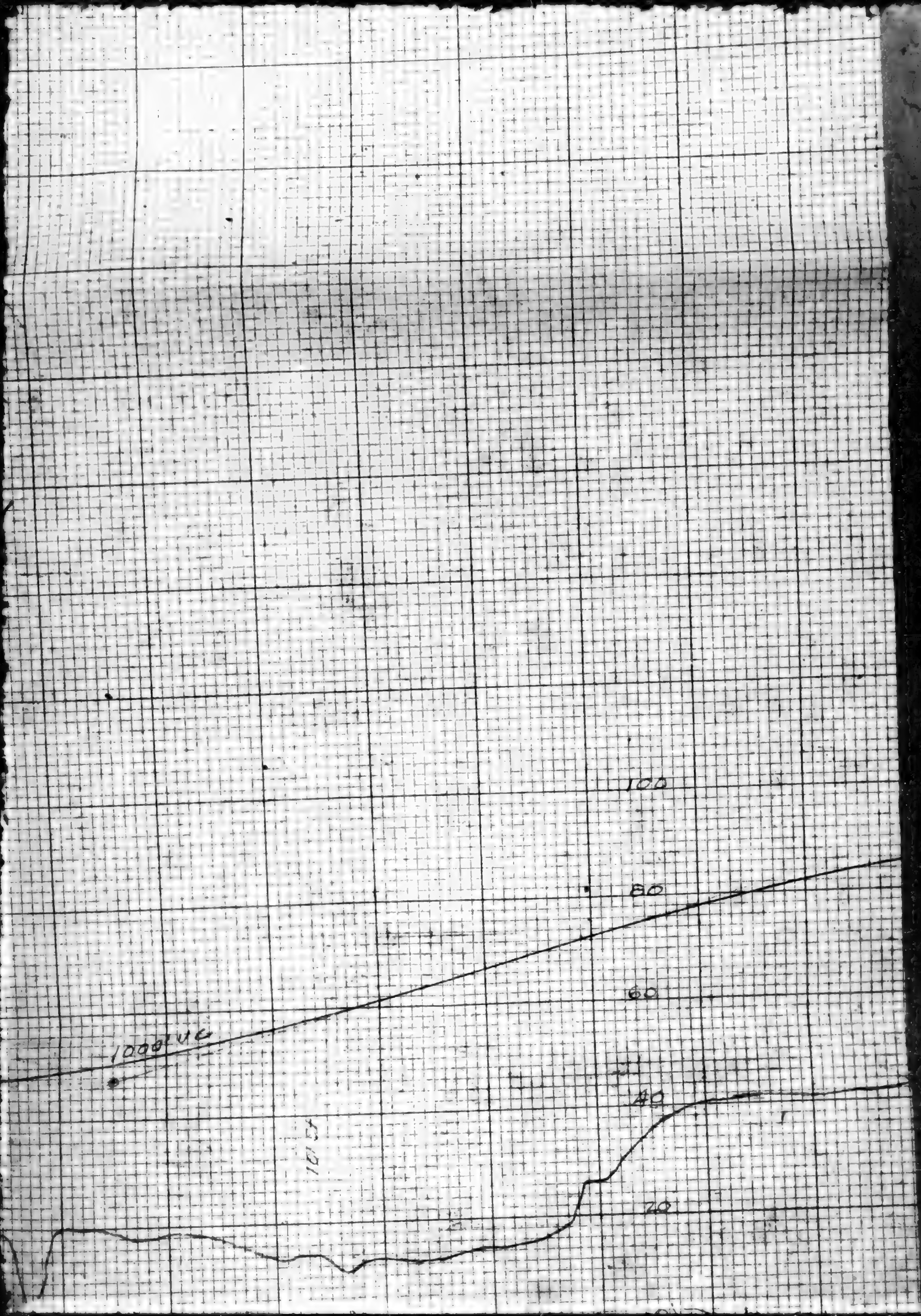

Edge of Proposed Fill
BVC El 34.12
86+00
800' V.C.
El. 52
5'
El. 35
Approach

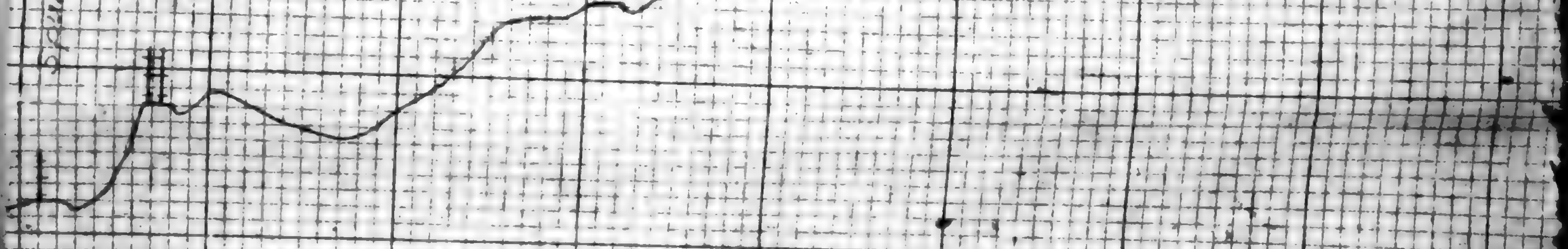

80
60
40
20
0
100 R.

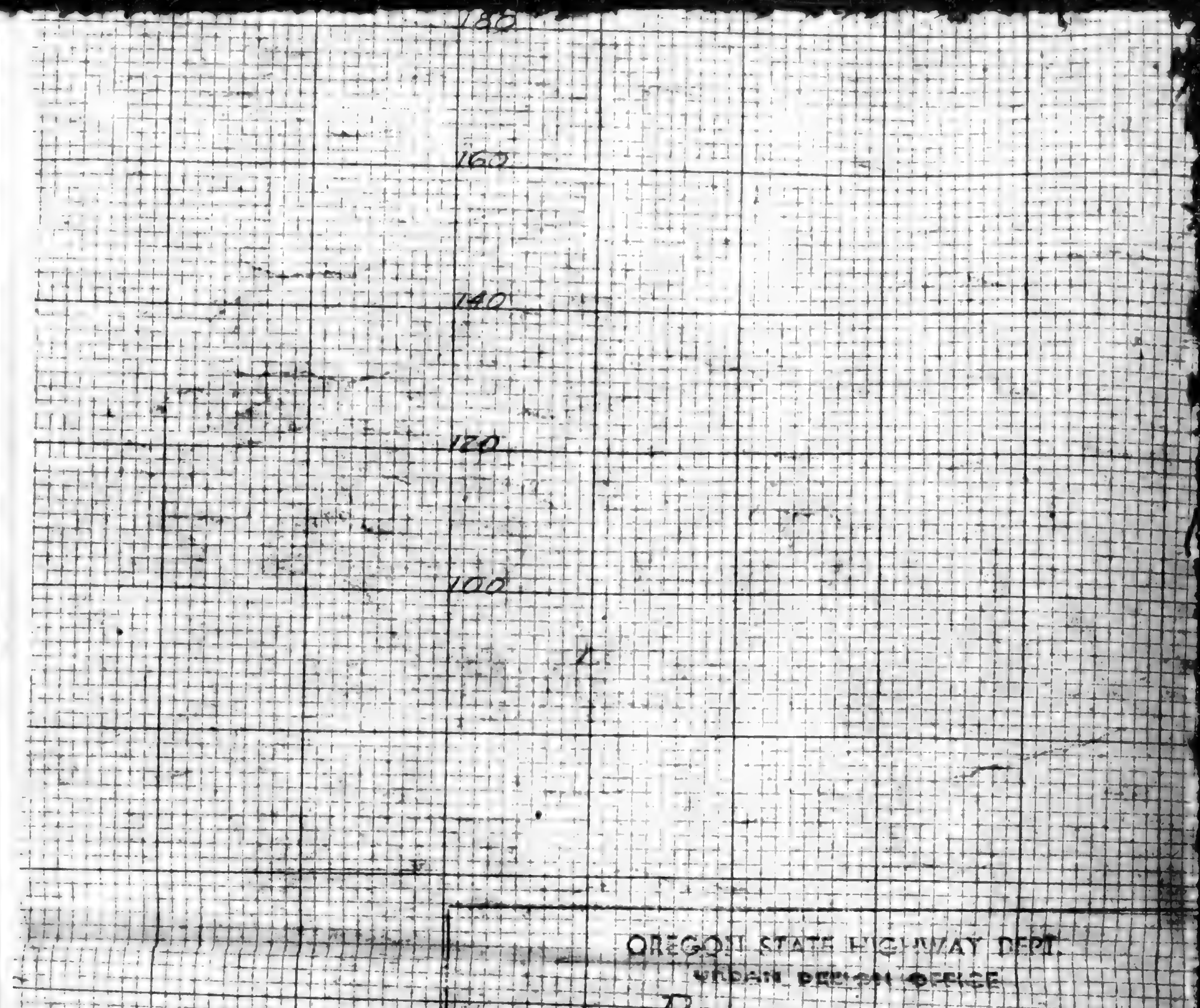

Marine Drive


7.66 P.T.S
2.66 P.T.




100
80
60
40
20
1000 UG
1013


2000' V.C.
SPRR
UPRR
Col. Blvd



OREGON STATE HIGHWAY DEPT.
URBAN DESIGN OFFICE

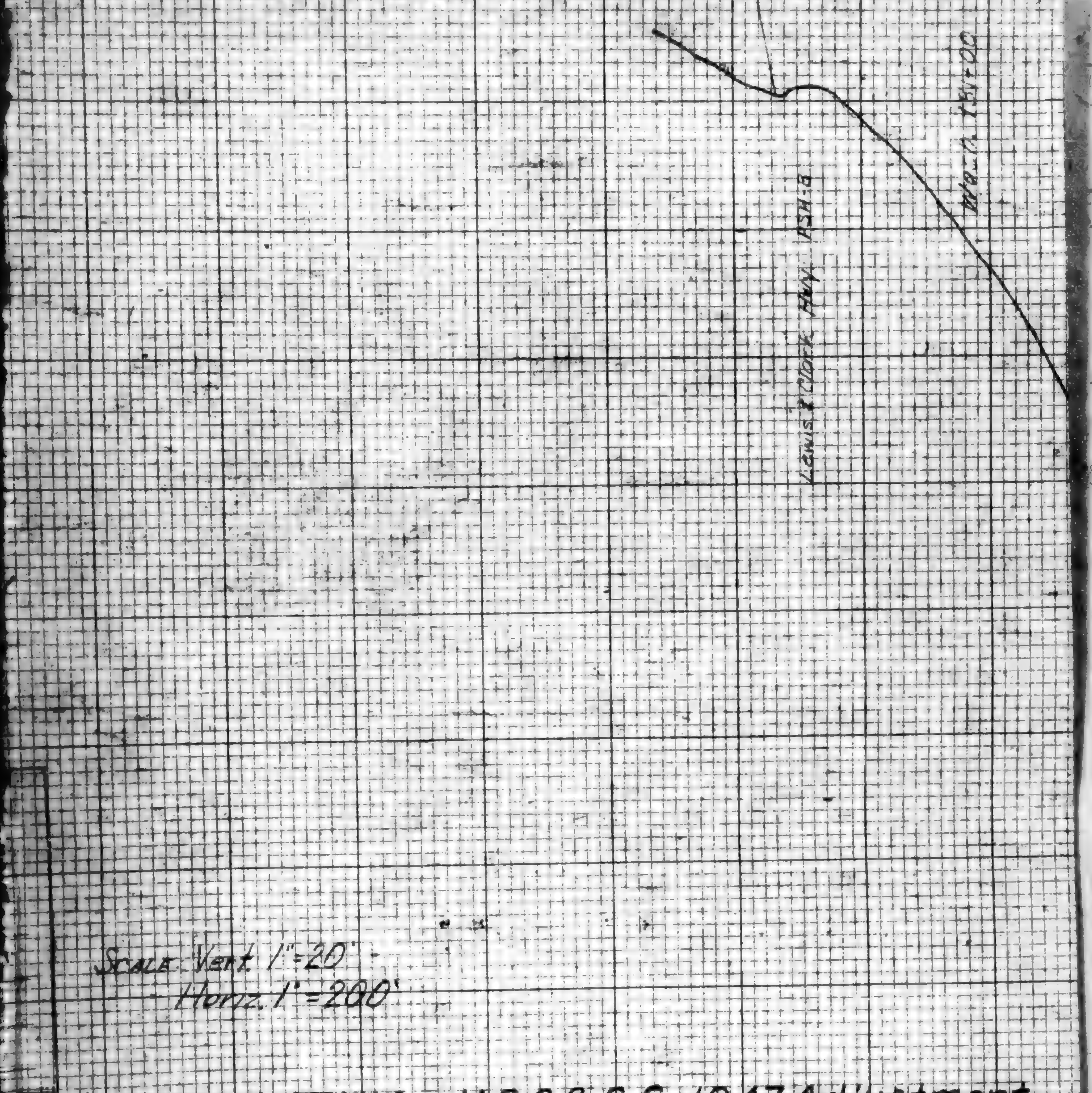
PROFILE

**PROJECT:** I205 Frwy.

**SECTION:** Columbia River Crossing

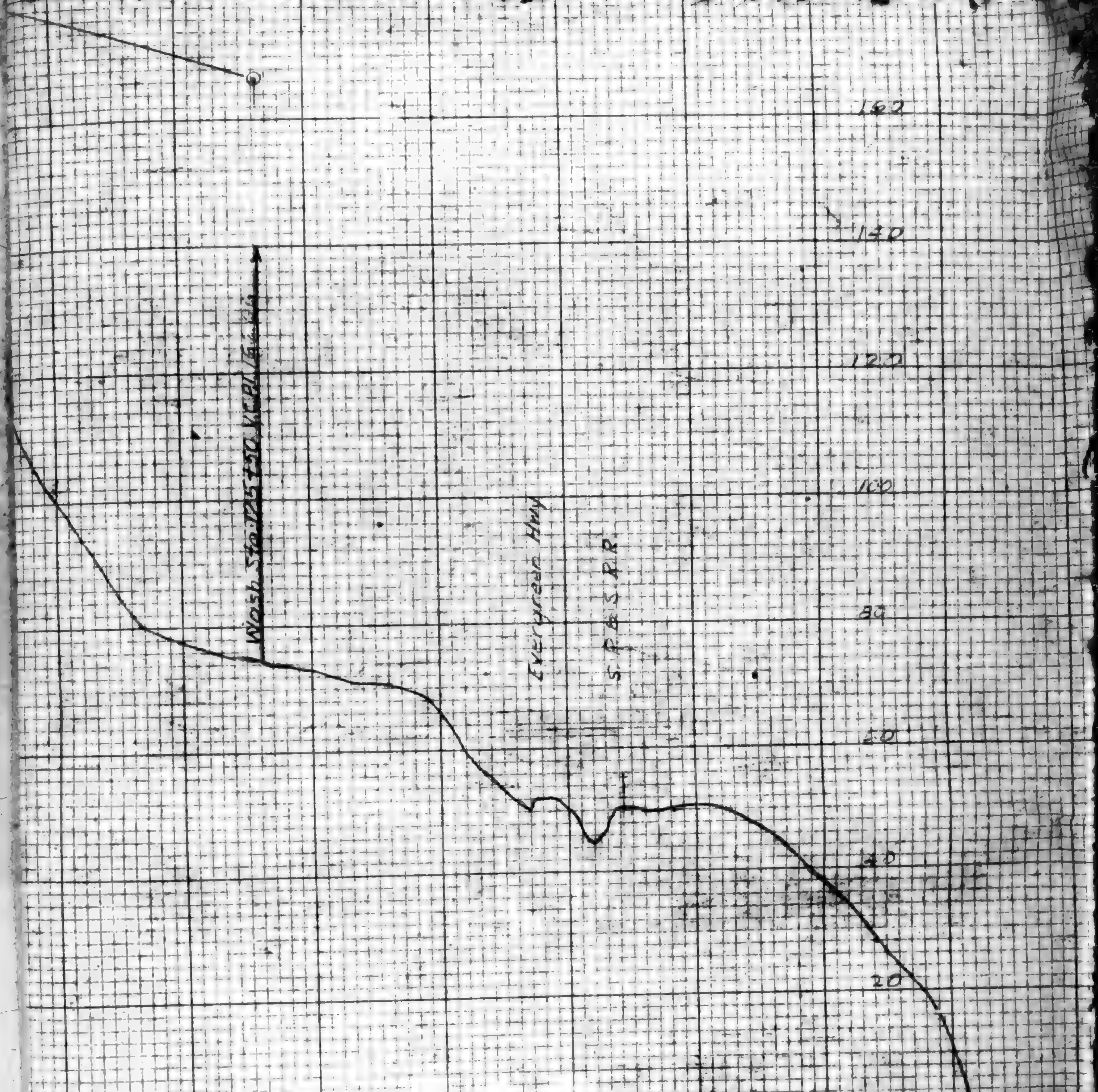
**STATIONS:** 150+00 Wash. to 180+00 Ore.

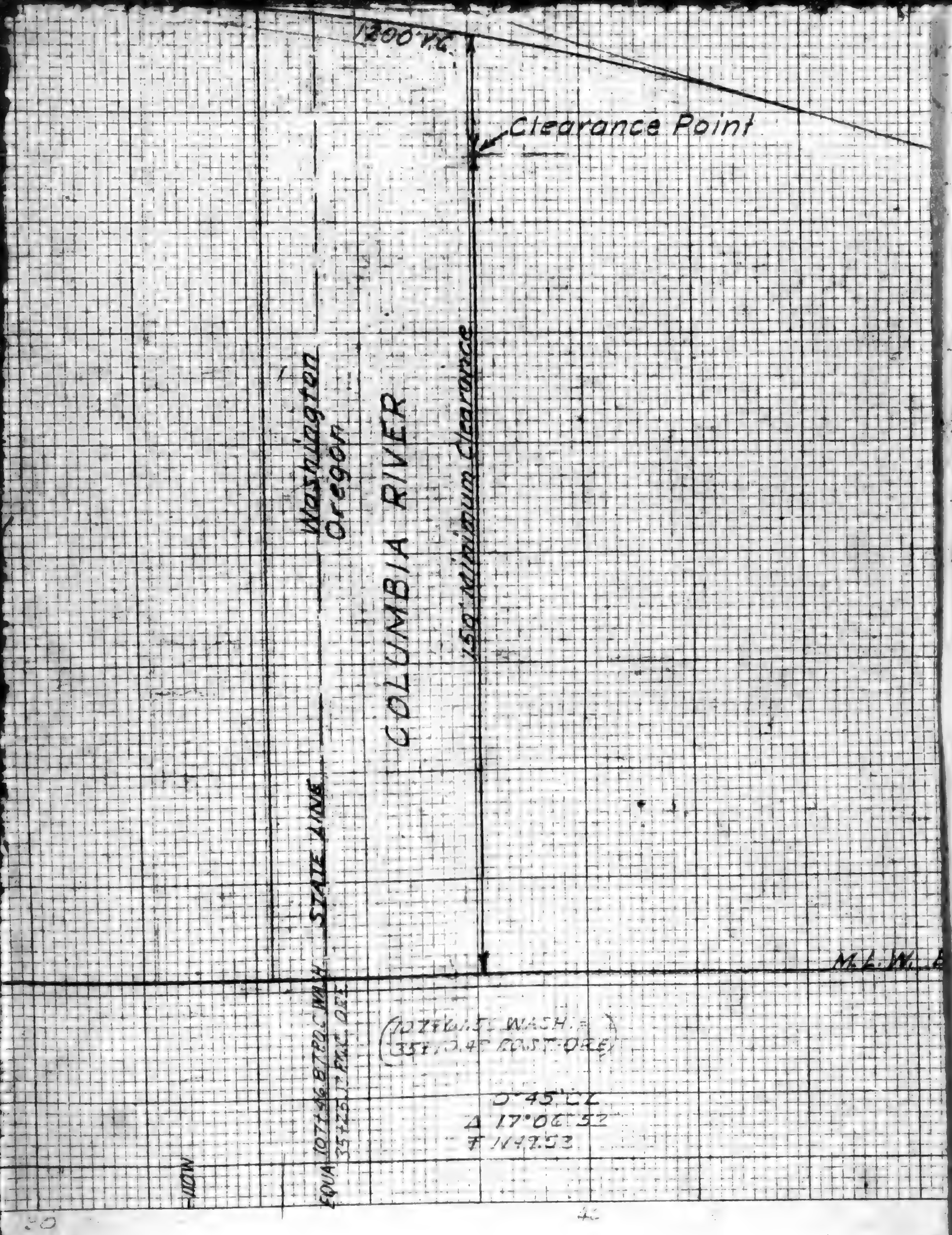
**DATE:** Feb. 23, 1968 **BY:** AK


Lewis & Clark Hwy PSH-8
Wa. Ct. 154+00
145W
140W
135W
130W
0
10

Scale Vert. 1" = 20'
Horiz. 1" = 200'

DATUM – U.S.C.& G.S. 1947 Adjustment.


160
140
120
100
80
60
40
20
0
Wash St to 125+50 V.C. Pl. [illegible]
Evergreen Hwy
S.P.&S. R.R.
28+75.41 P.I.
125W
120W
115W


1200' V.C.
Clearance Point
Washington
Oregon
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351+ ... ORE.
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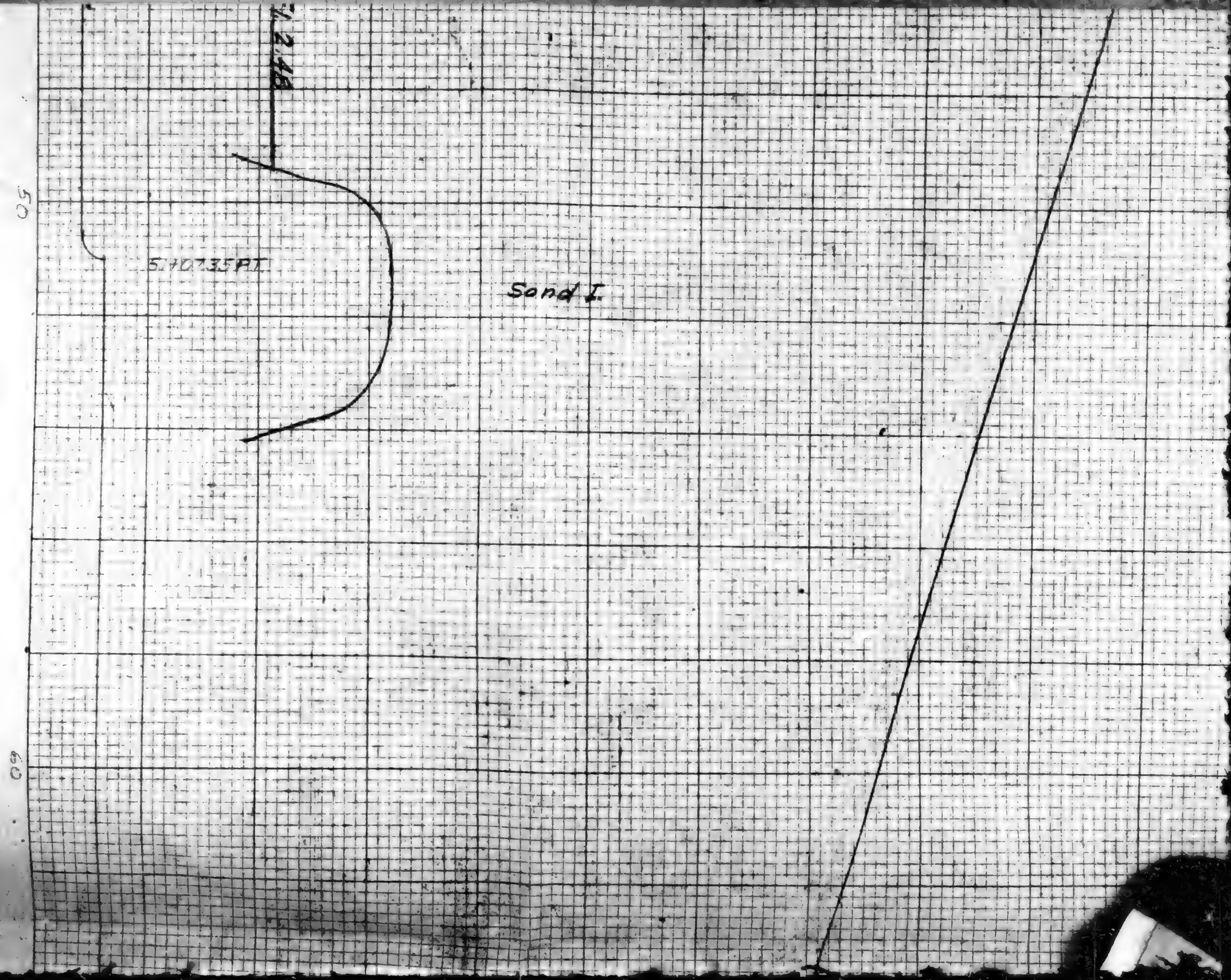
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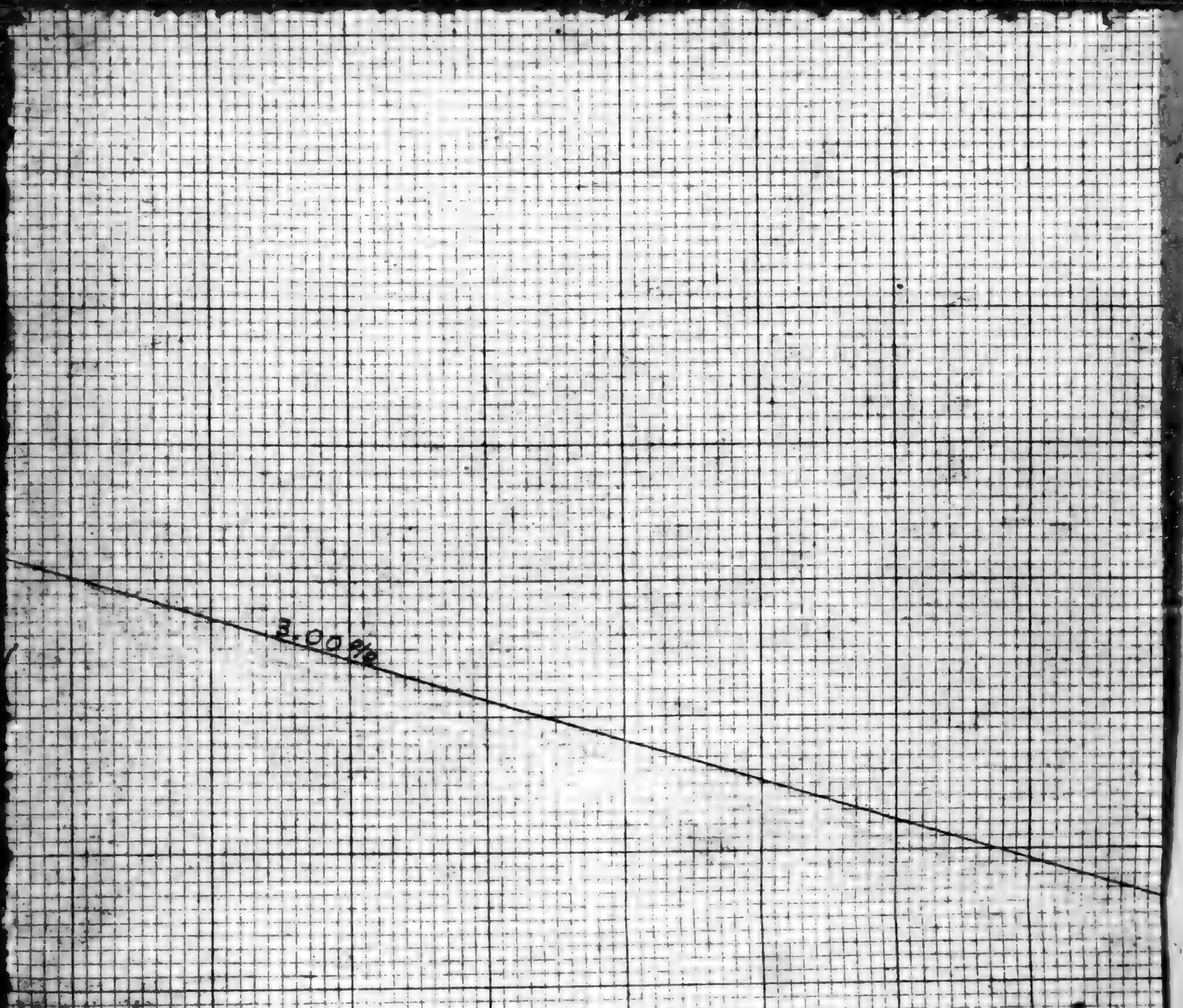
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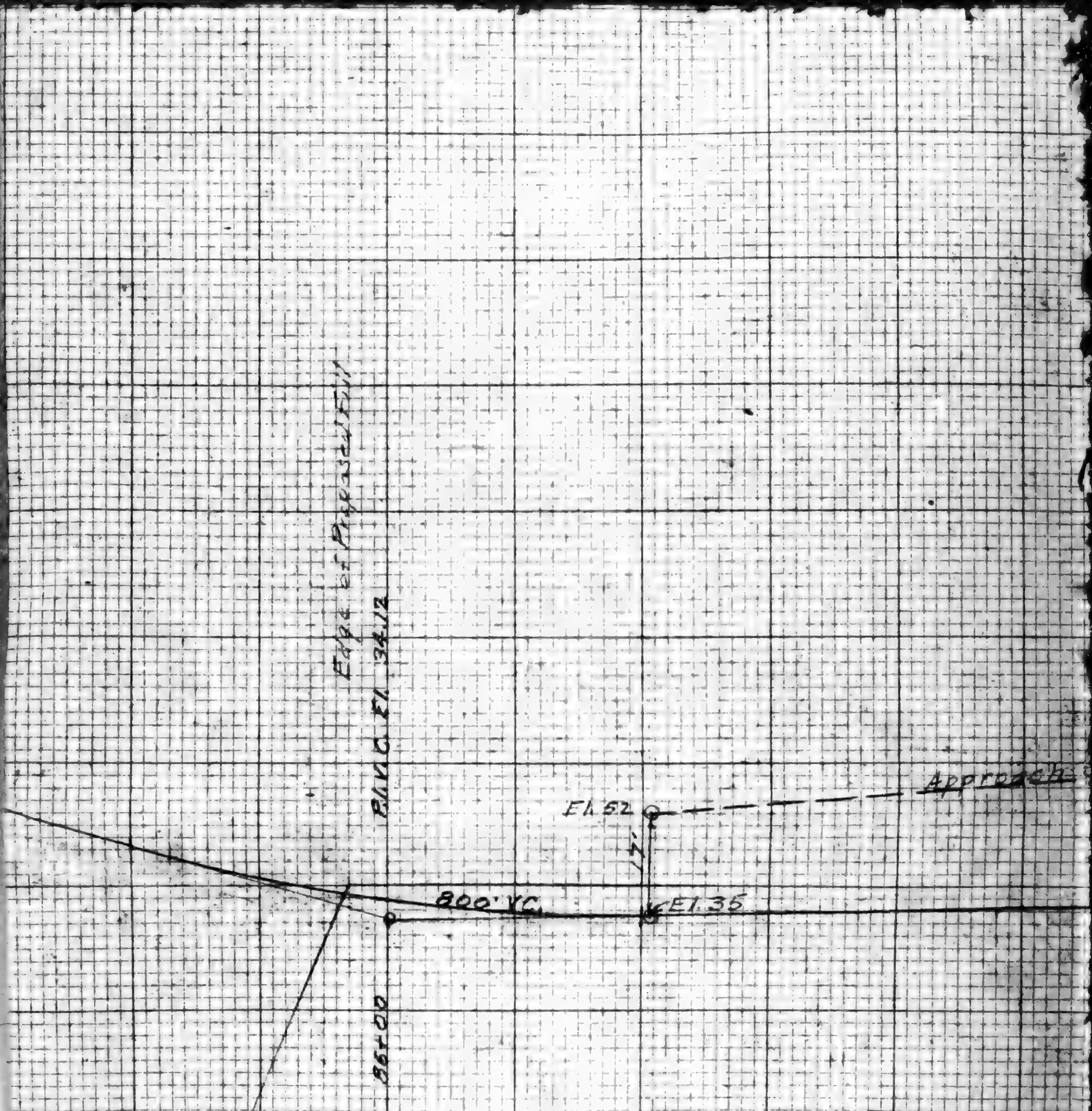
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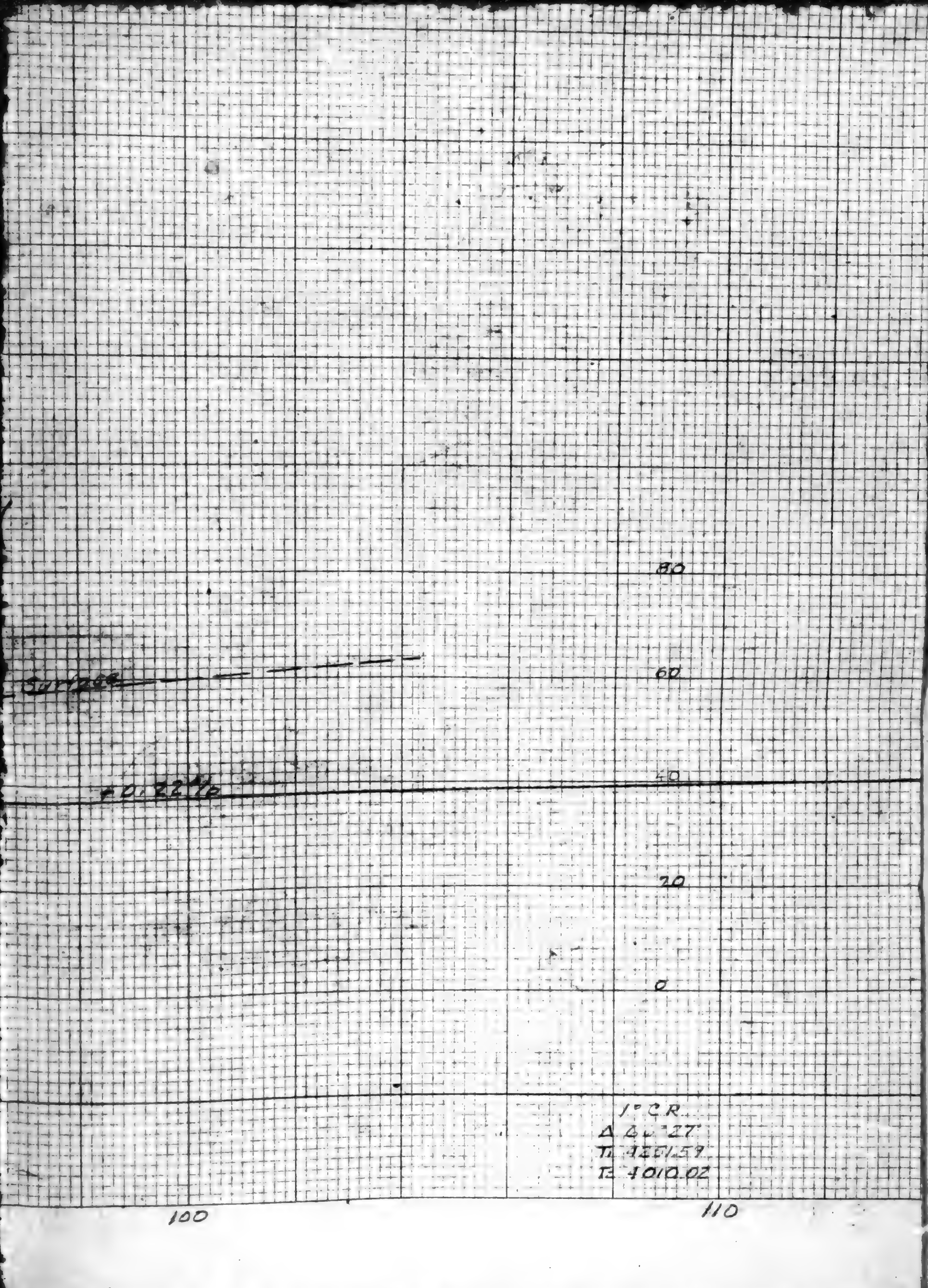
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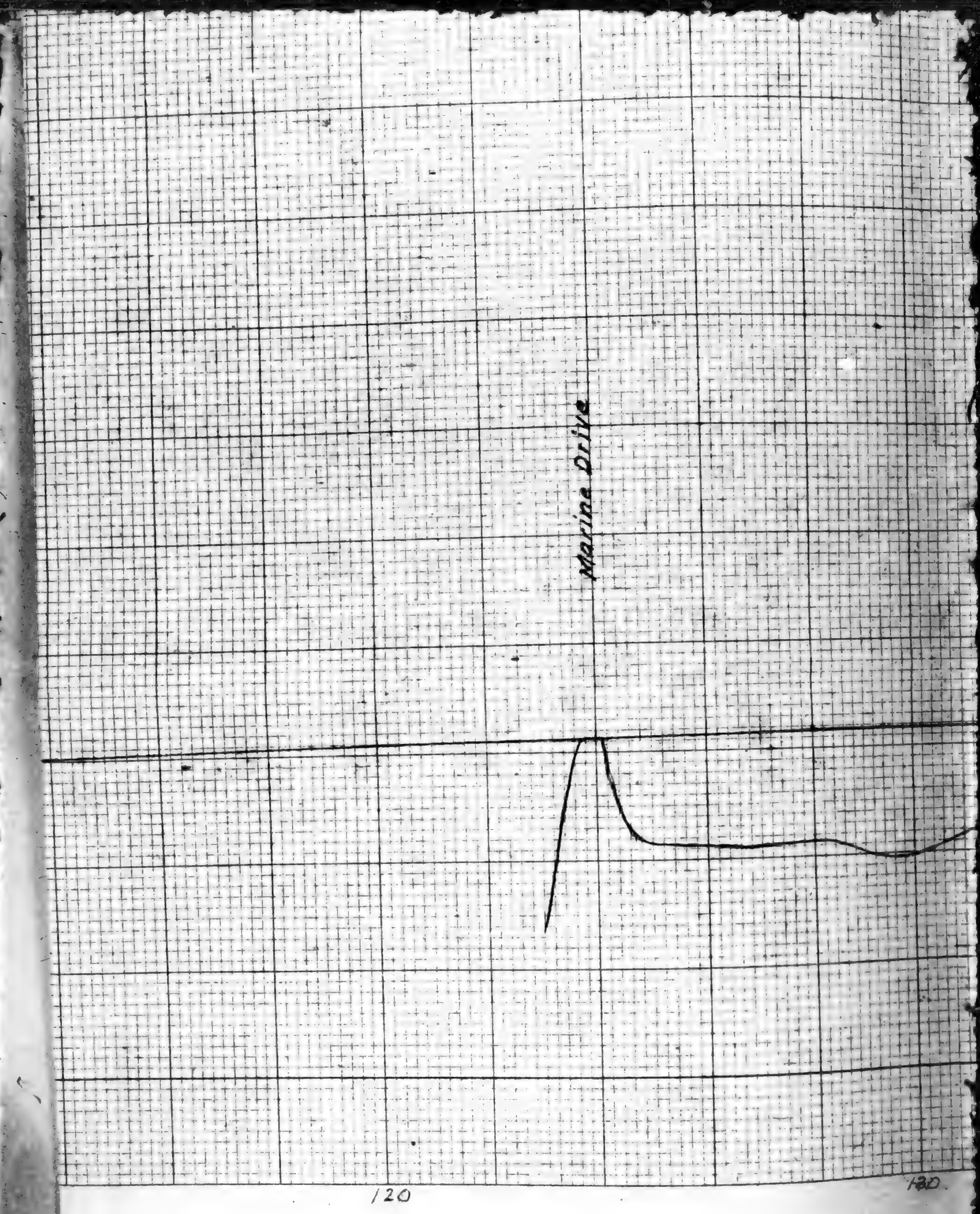
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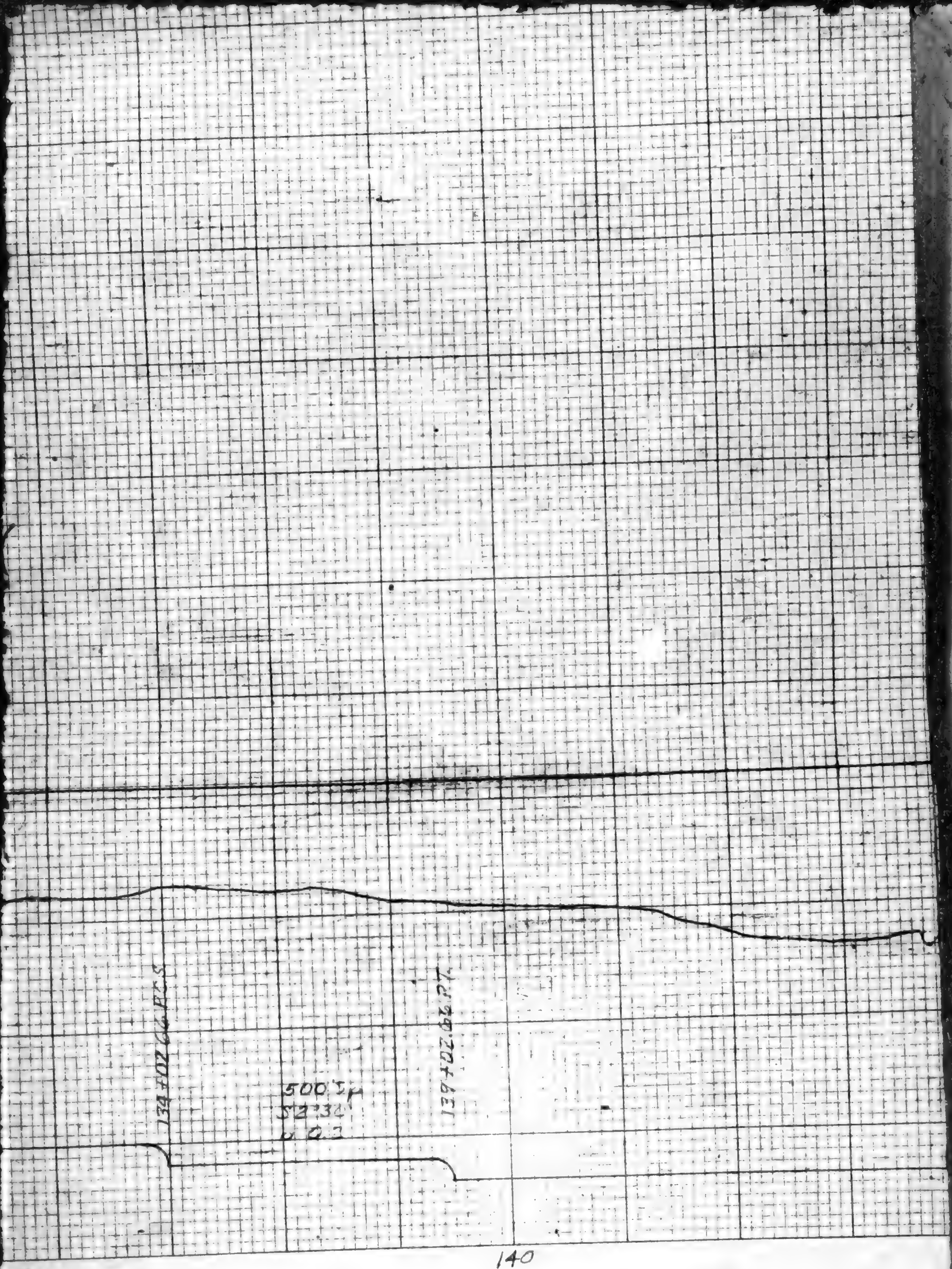
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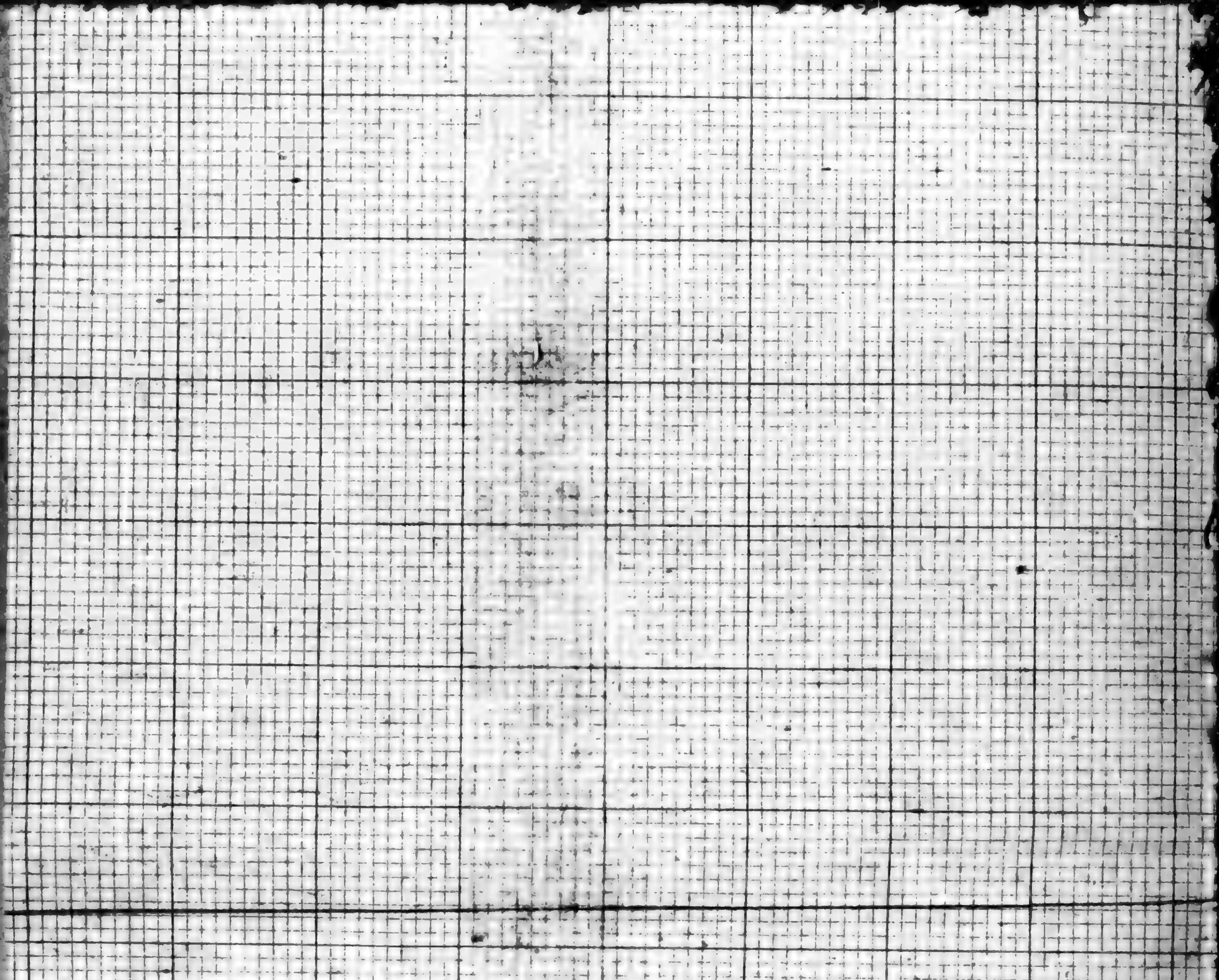
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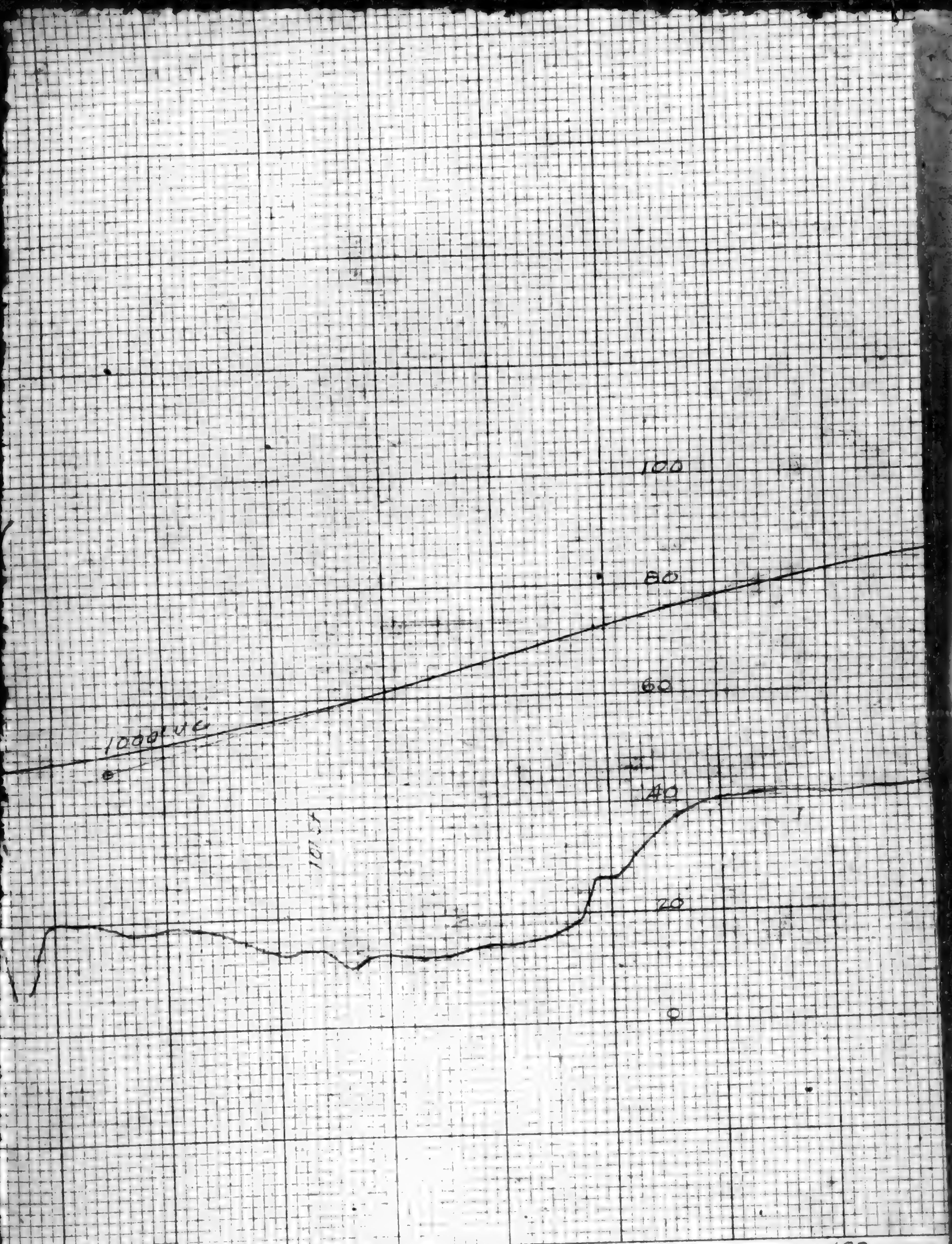

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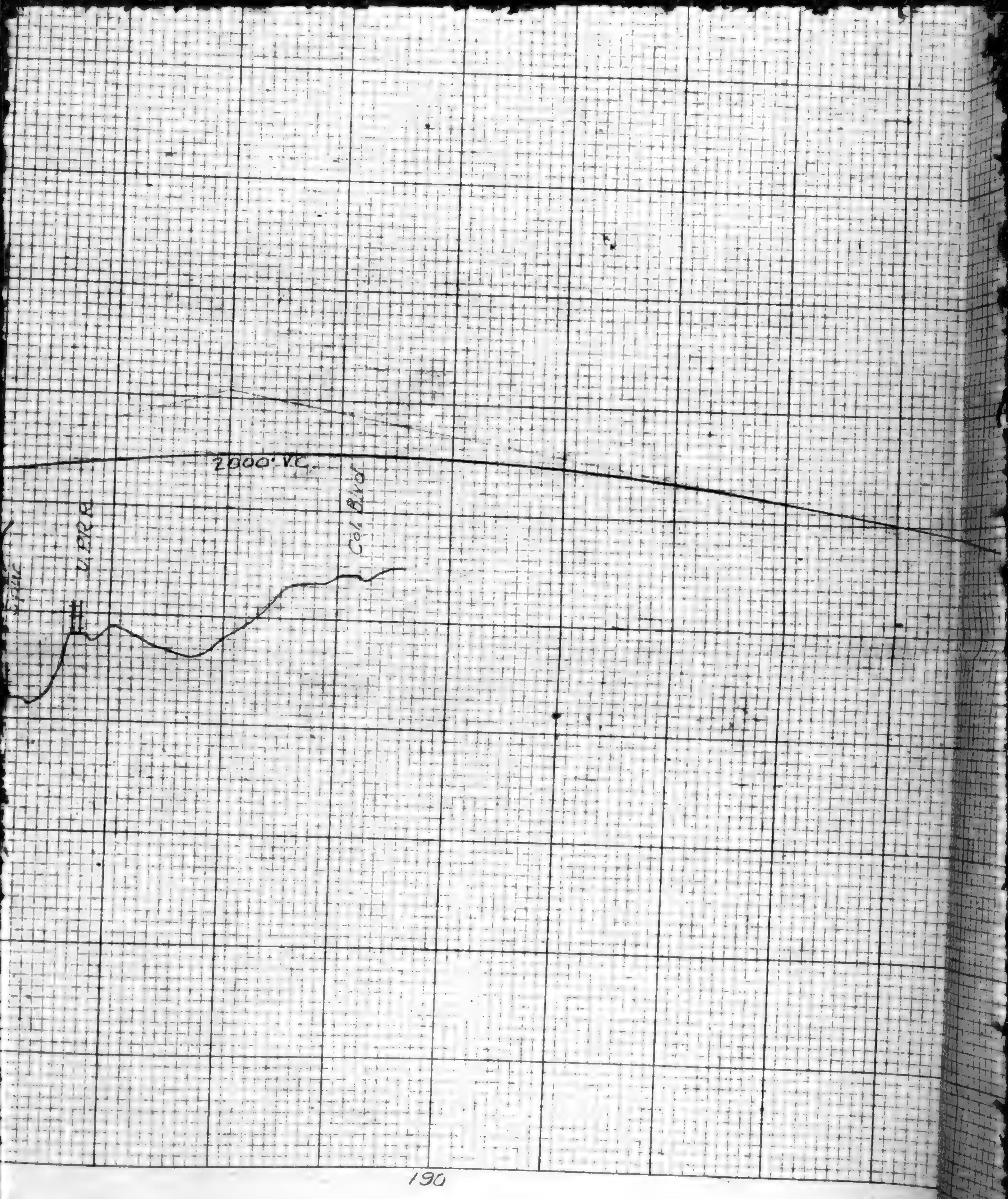
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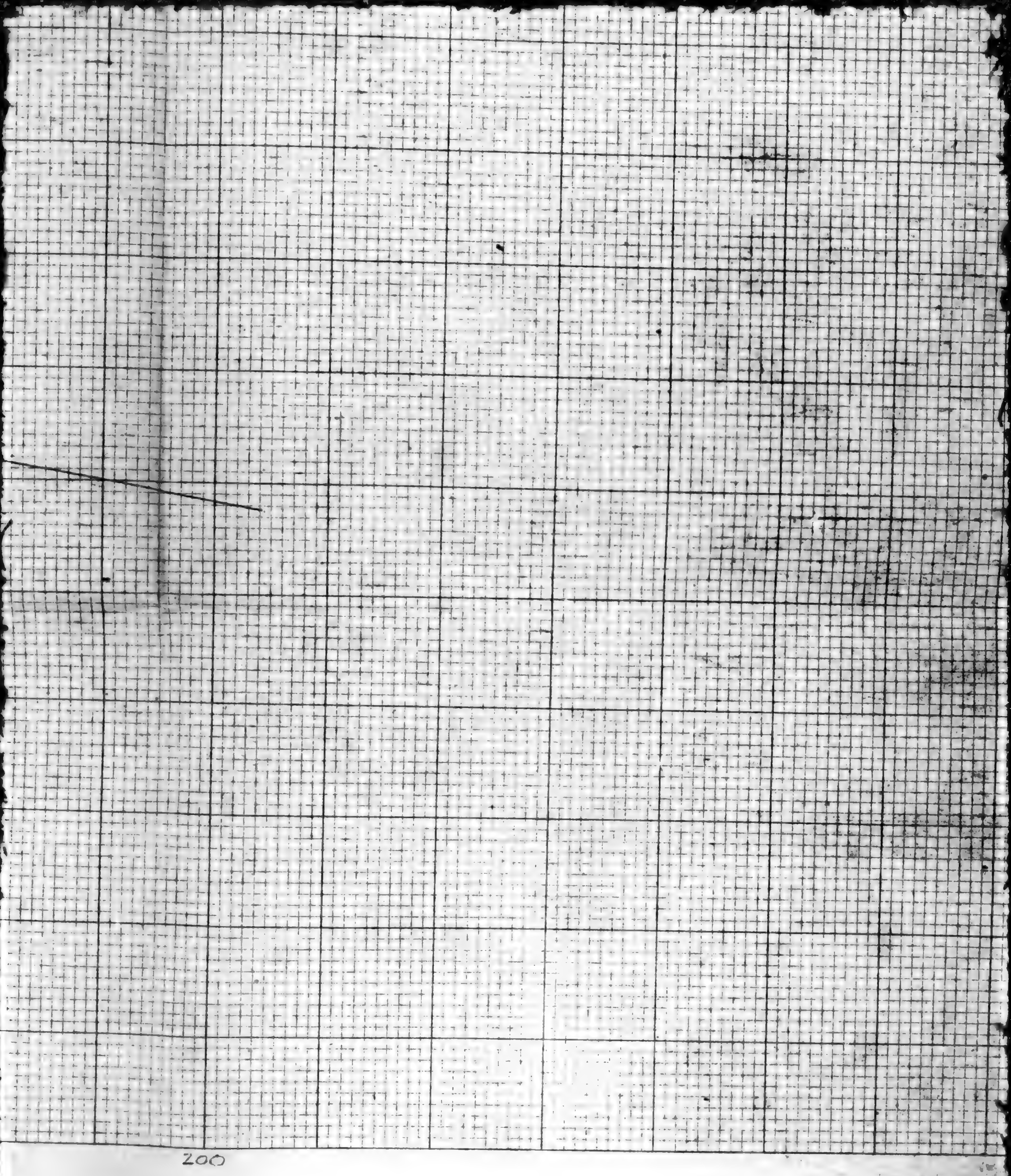
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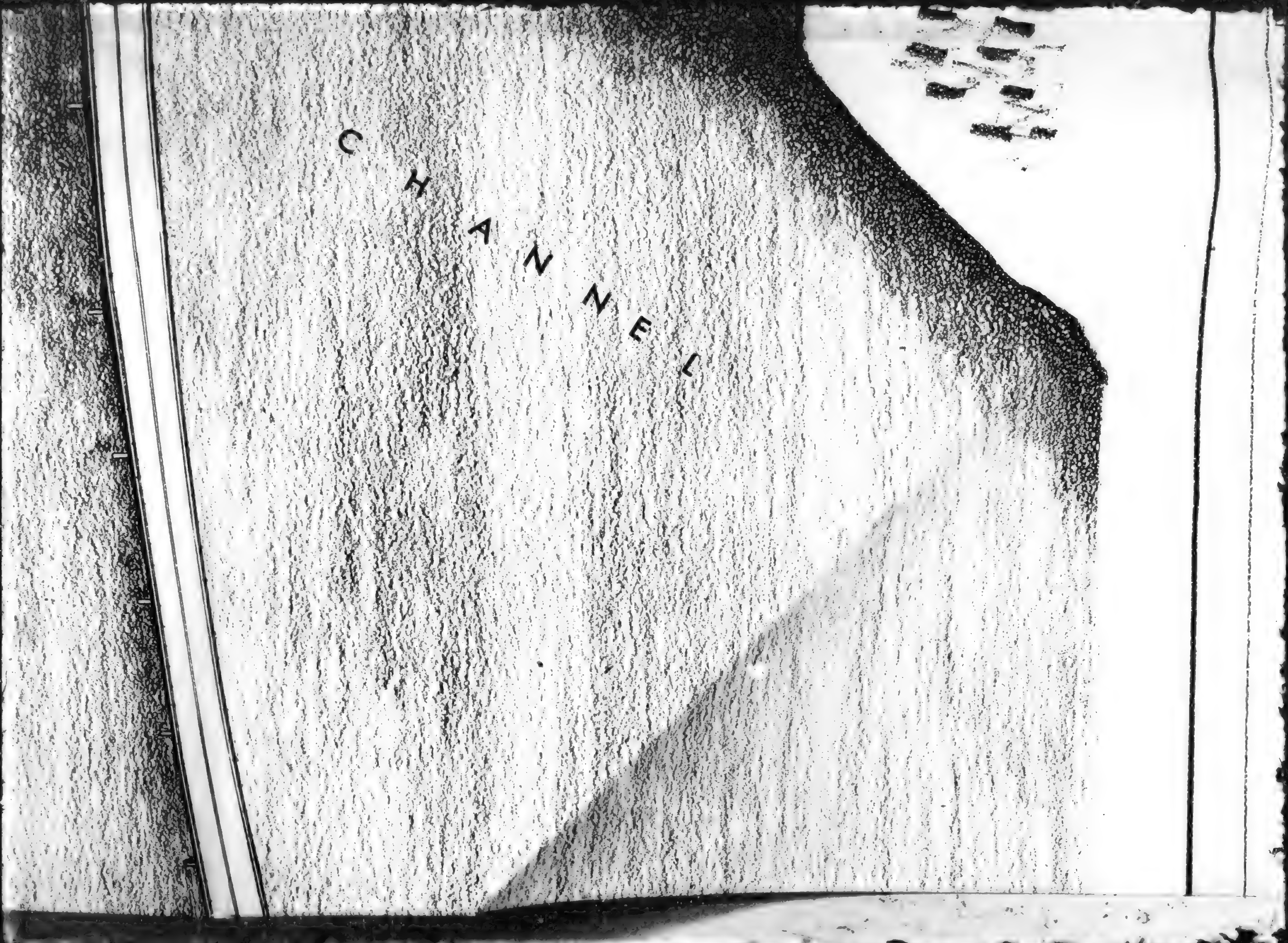
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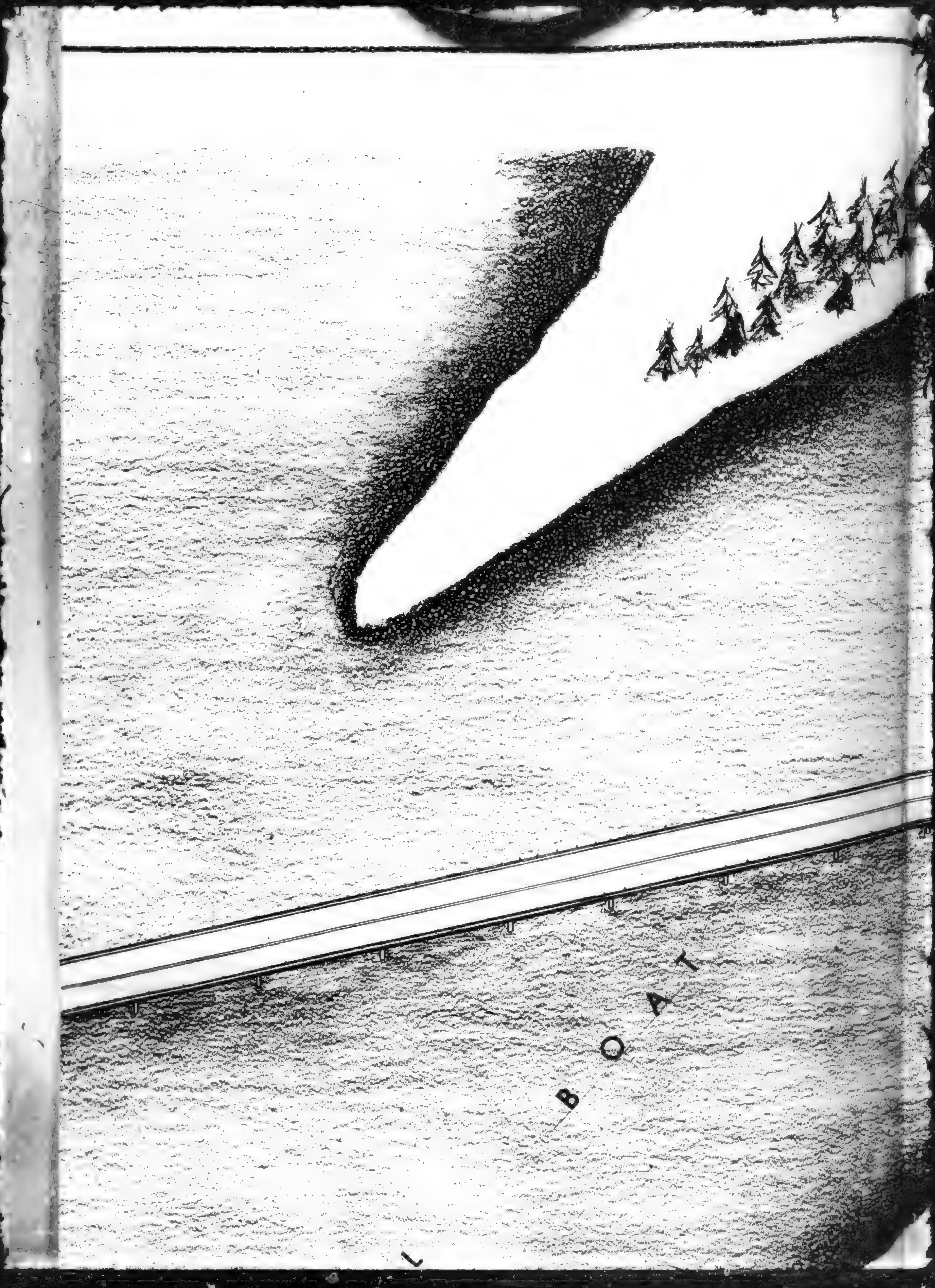
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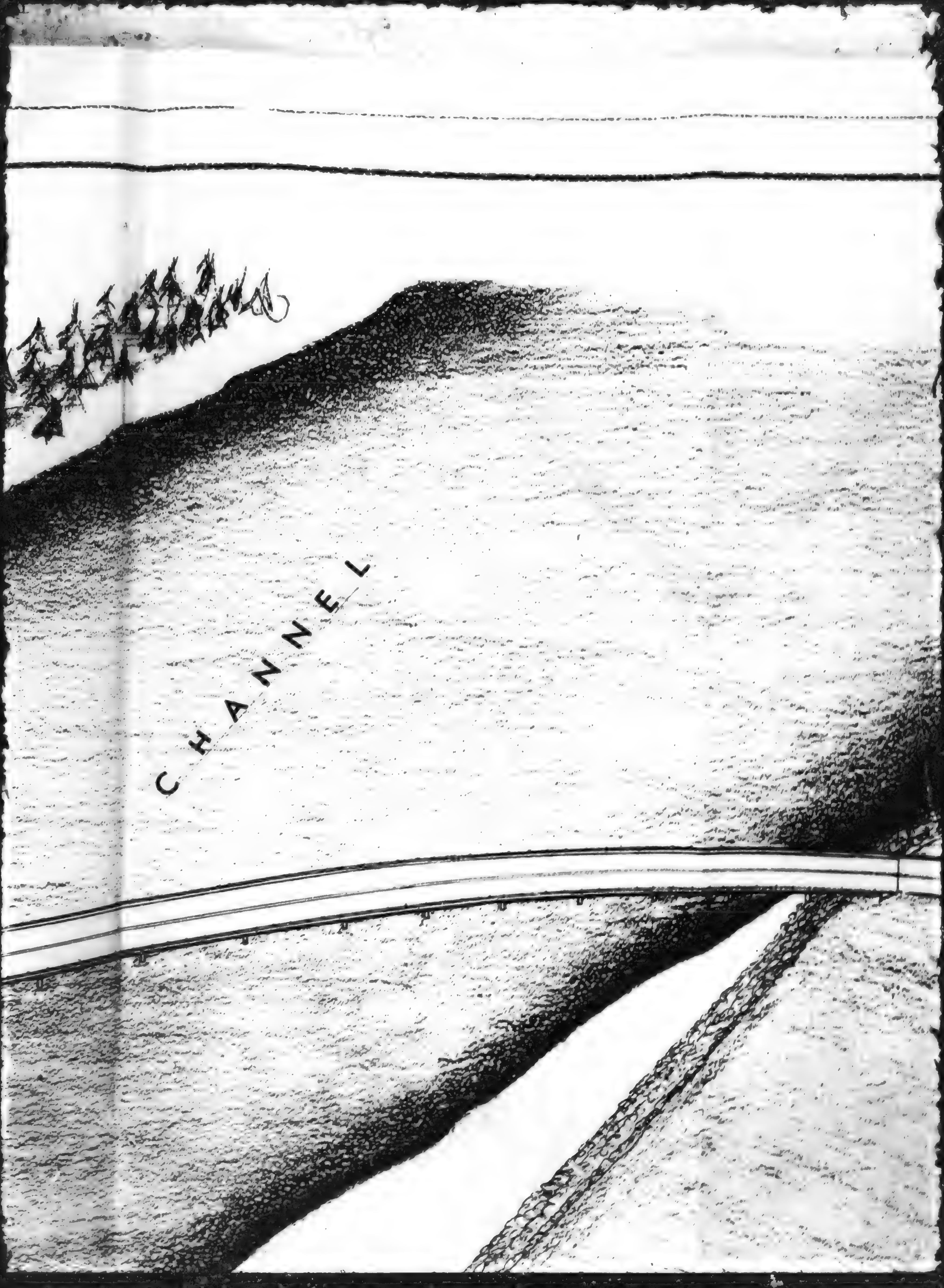
BOAT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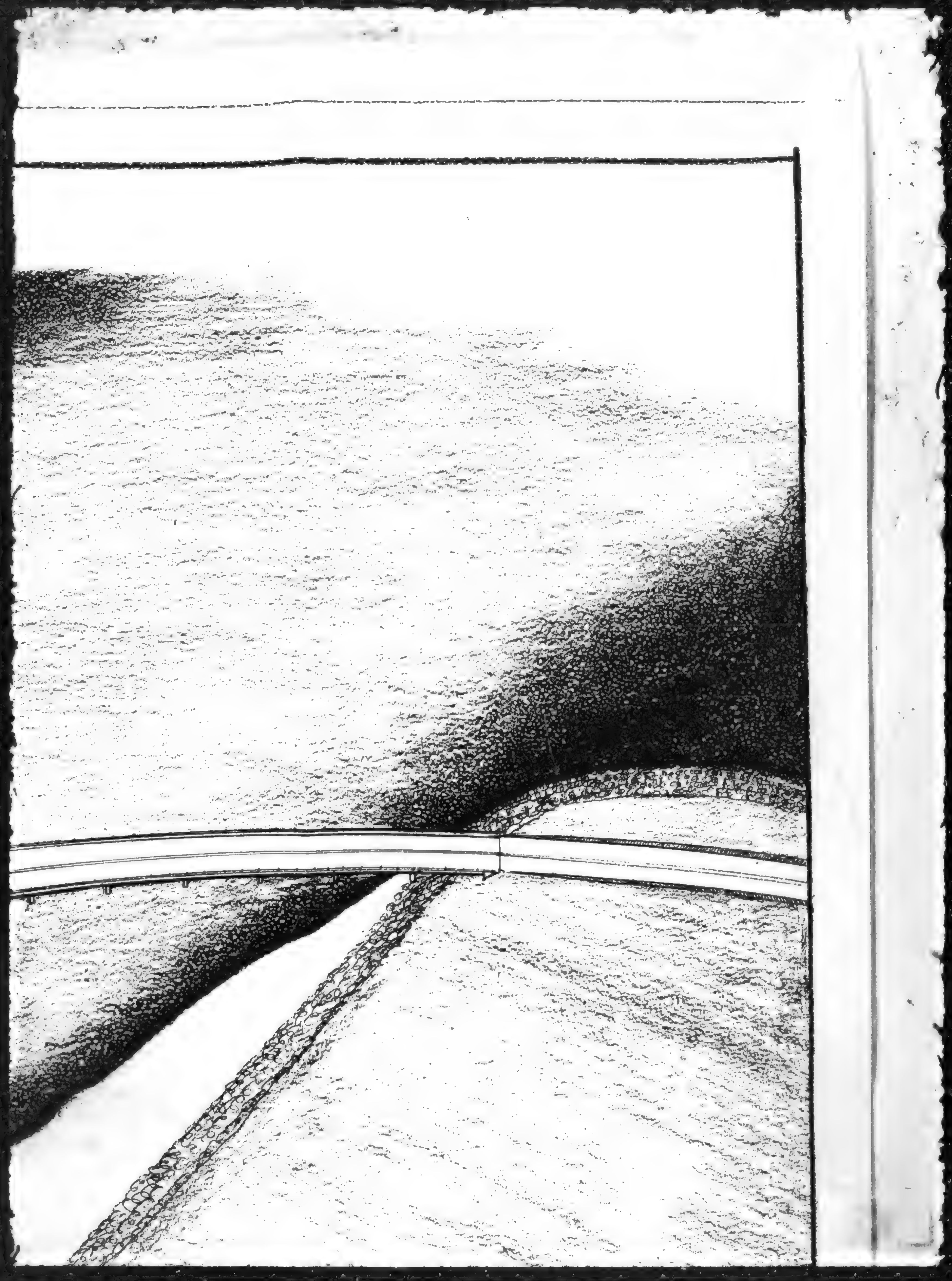

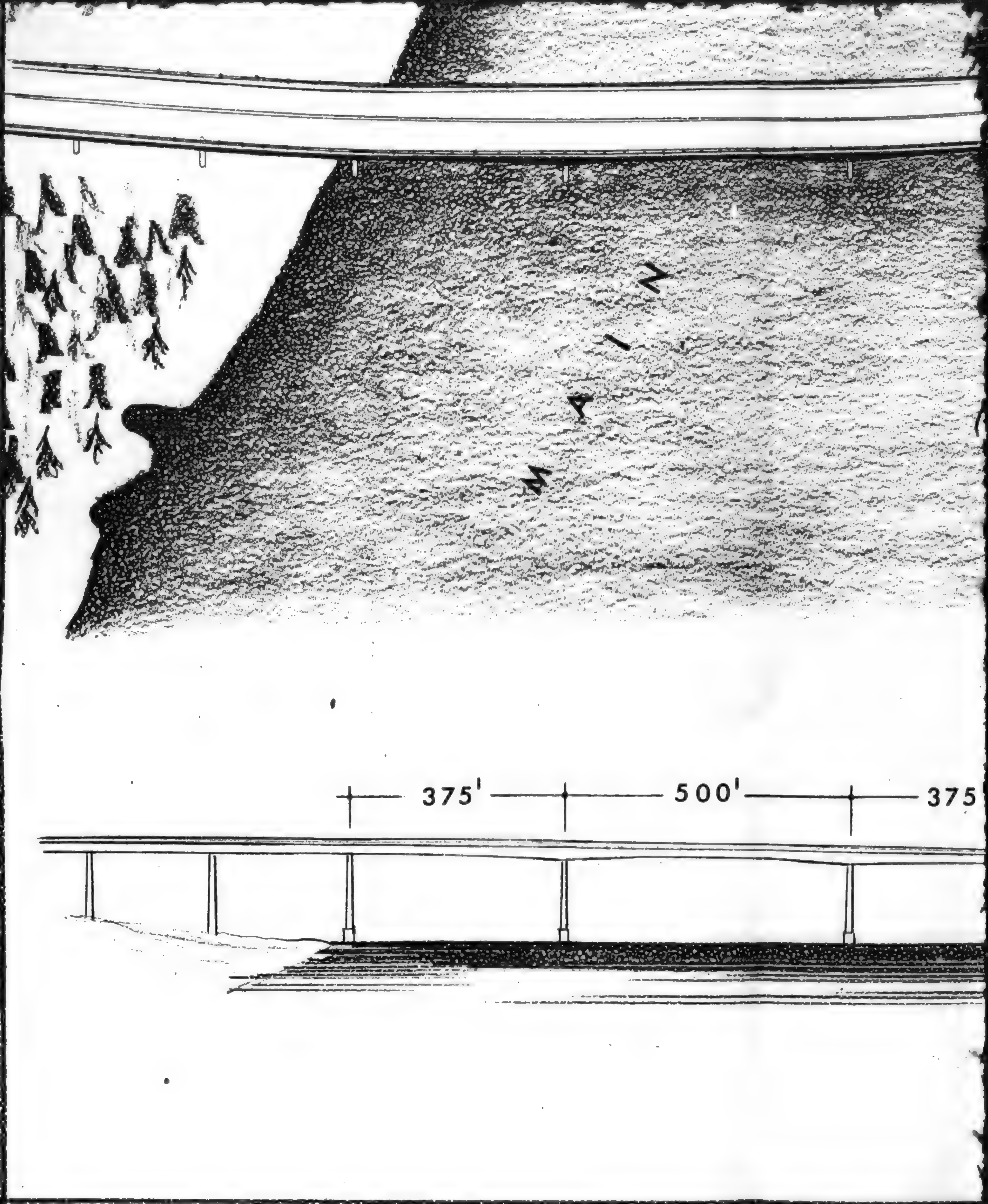
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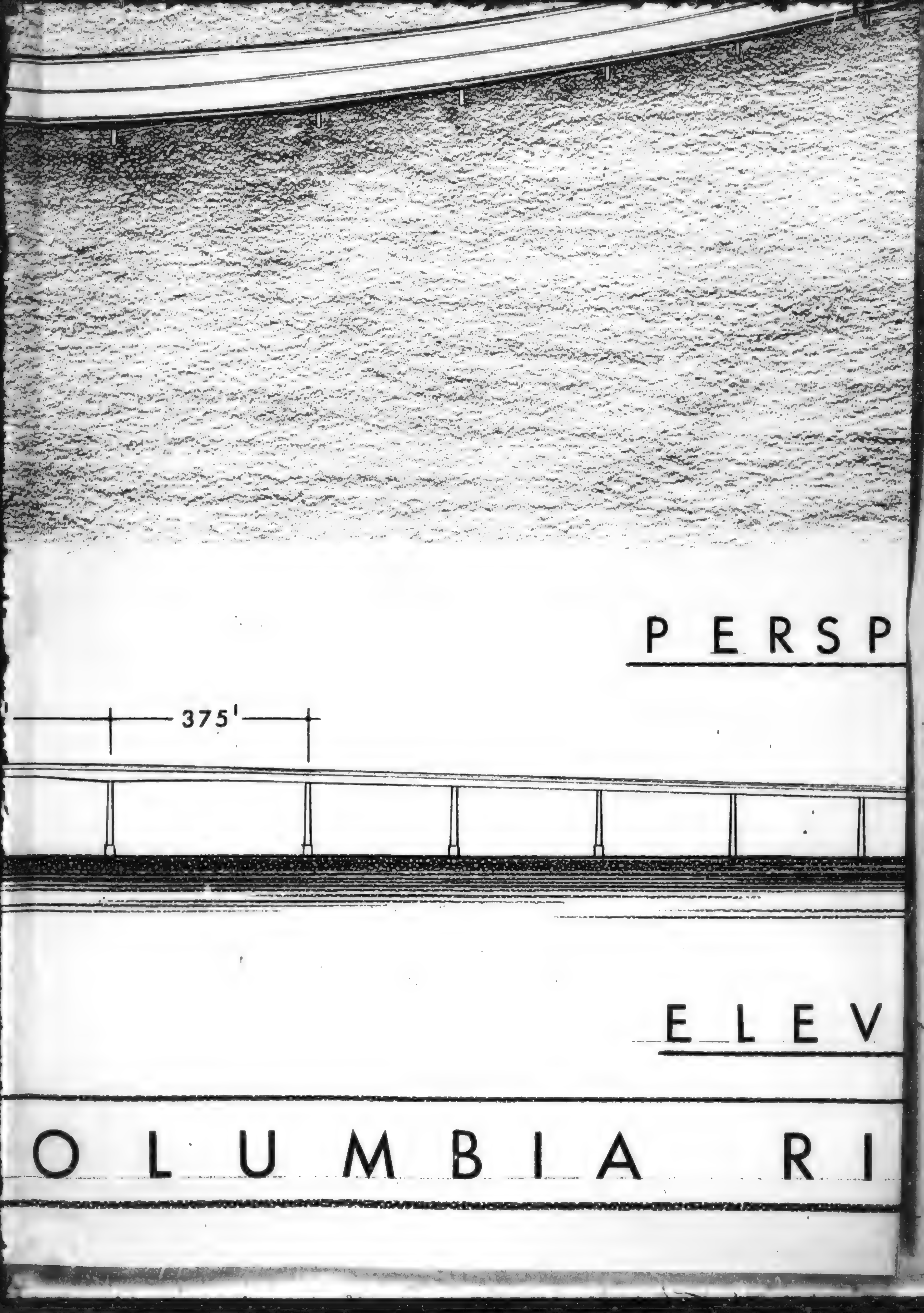
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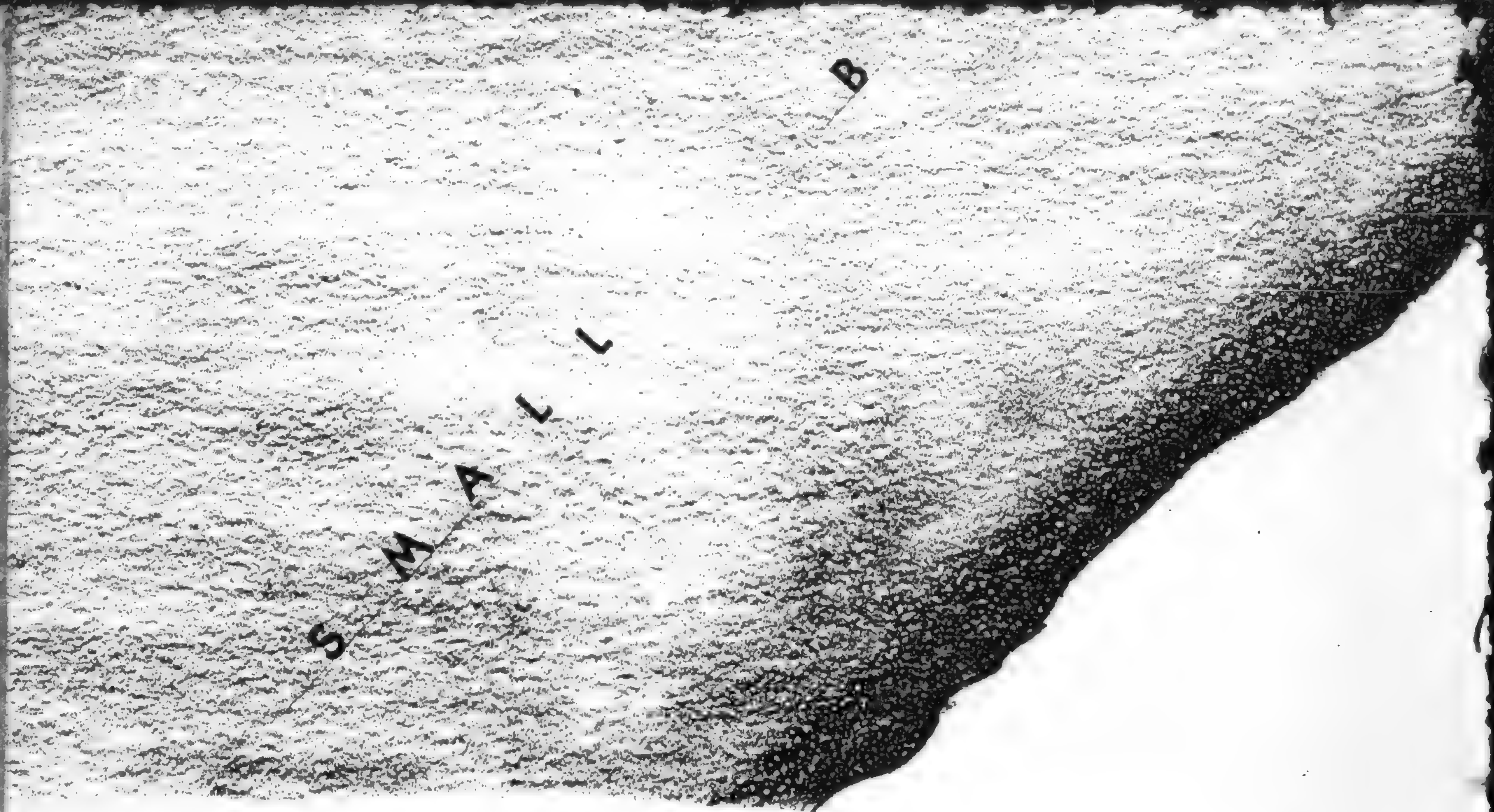

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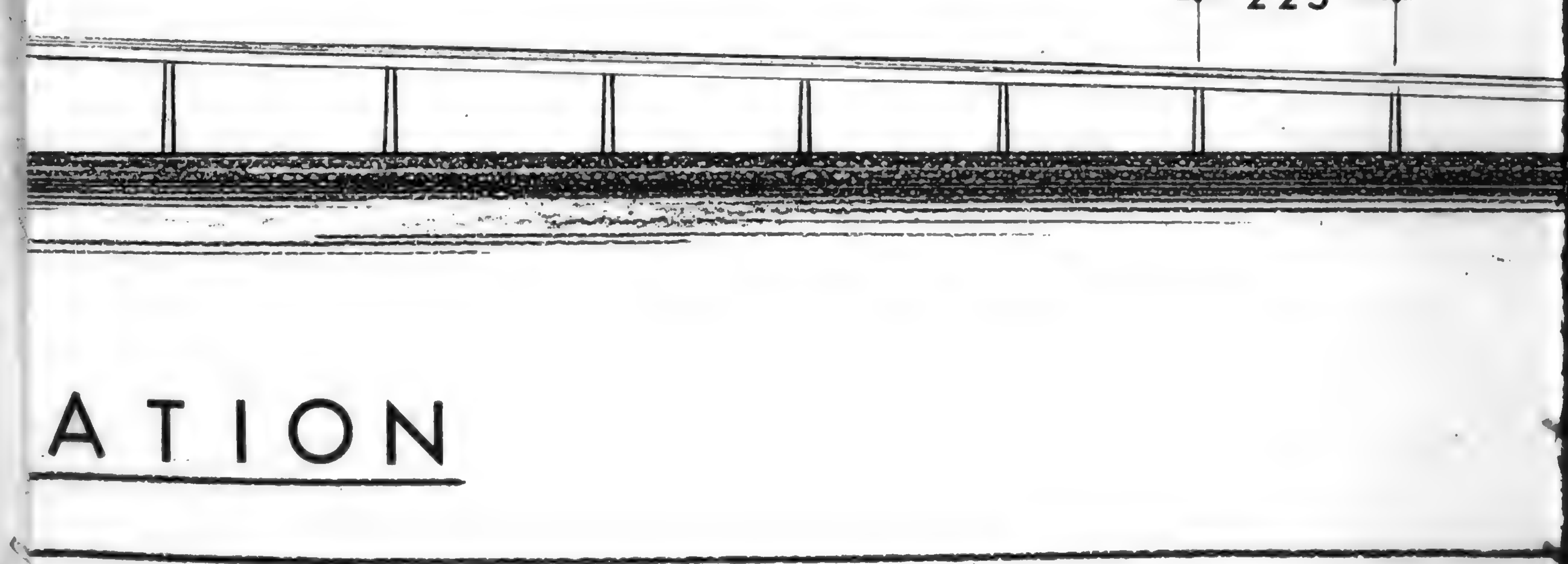

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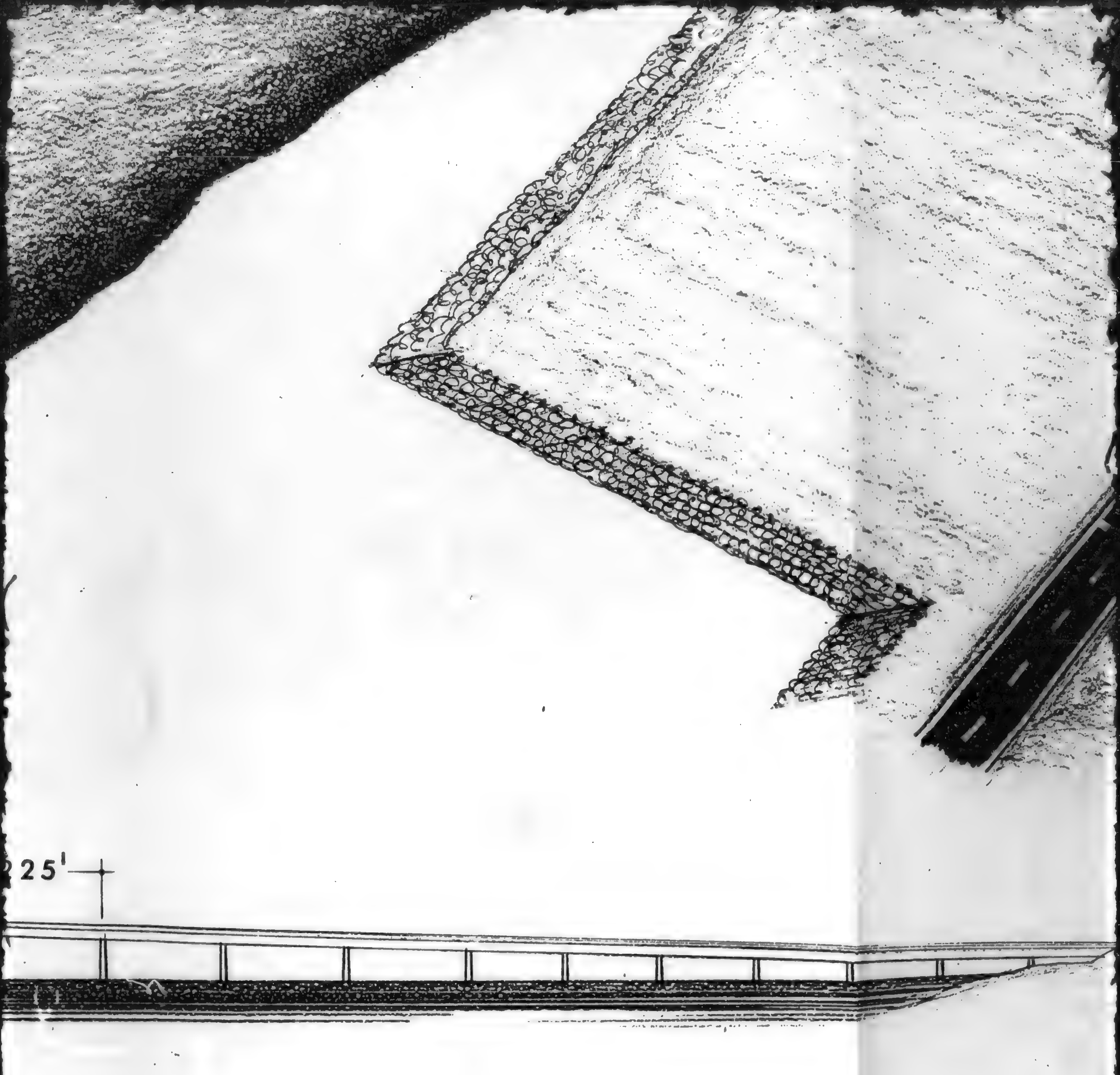
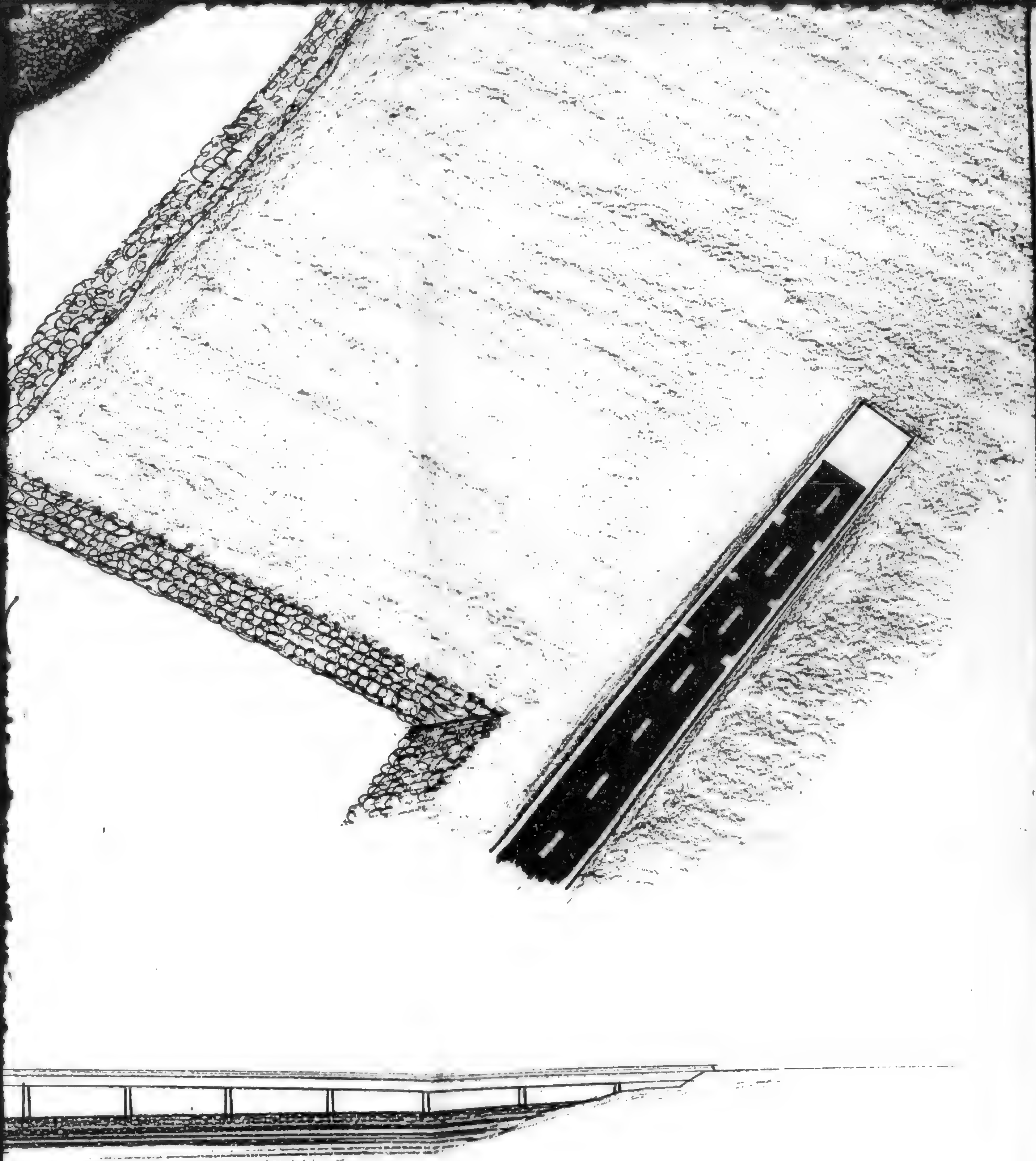


I-205



J.A. JOHNSON

1979 Columbia R. Br. (N. Channel 8905
Superstruc.) Sec. of E. Ptld. Fwy.
(Structure) (Vertical Clearances) #3

FEB 7 [illegible]

Honorable Julia Butler Hansen
House of Representatives
Washington, D.C. 20515

Dear Mrs. Hansen:

This communication to Secretary Boyd, dated January 31, with a copy of a letter from Mr. Matthew R. Thompson concerning the design of the proposed bridge across the Columbia River on Interstate Highway 205 is returned as requested.

Mr. Thompson's interest in building a really beautiful and important bridge in this location is appreciated. The Bureau of Public Roads will work closely with the Oregon State Highway Department to assure an aesthetic design compatible with the area.

The basic responsibility for the design, resides with the State Highway Department and we are certain that they share Mr. Thompson's interest in this matter; however, no action can be taken at the present time because at the request of the Port of Portland, the State of Oregon has deferred the project indefinitely.

We are forwarding a copy of this letter and enclosures to our Division Engineer in the State of Oregon with the request that he aquaint the State Highway Department with Mr. Thompson's interest and recommendations concerning this proposed bridge.

Sincerely yours,

F. C. Turner

F. C. Turner
Director of Public Roads

Enclosures (2)
Transmitted correspondence

6042-7
Beautification

116 Evergreen Drive
Vancouver, Washington 98661

NOTED
FORREST COOPER

Congresswoman Julia Butler Hansen
U.S. House of Representatives
Washington, D.C.

NOTED
R. L. PORTER

Dear Congresswoman Hansen:

I am writing in regard to the design of the proposed bridge across the Columbia River on Interstate Highway I-205.

Here is a great opportunity for a really beautiful and important bridge which would be a landmark in the area and an event on the route of tourists and travelers in our area even as the Golden Gate Bridge which has an enormous intangible value to the Bay Area which came about because some people cared a great deal about its design.

The Federal Government's position on highway beautification is firmly on record and over 90% of the money is coming from the Federal Government. These two facts would seem to insure that the bridge would be the most imaginative, beautiful, and appropriate possible. I hope so, but, I'd like to be more sure. I'd like to see directives from the Secretary of Transportation or higher to the Oregon and Washington highway departments to the effect that this bridge should be a high example of the administrations beautification intentions and I'd like to see an adviser or an advisory group appointed at the state level to assist in seeing that these intentions are carried out for this project. I'd like to see the highway department responsive to the administrations intentions and the wishes of people in this area who want an outstanding bridge and I'd like to see an outstanding bridge result, one that we can be proud of, known outside the area, familiar to travelers and symbolic of our area.

It may cost more, it may cost less than what the highway department would design unwatched and unencouraged, I don't know. But in any event they tell me it's going to cost over 20 million dollars. The opportunity is tremendous. I hope we don't spend all that money on a second rate bridge.

Any efforts you can put forth in this cause could result in a beautiful bridge known and appreciated by millions and millions of people in and beyond our area and for many many years into the future.

RECEIVED
MAR - 1 1968
OFFICE OF
HIGHWAY ENGINEER

Respectfully,

Matthew R. Thompson
Matthew R. Thompson

8915

.6803

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GEORGE M. BALDWIN
General Manager

THE PORT OF PORTLAND

BOX 3529 PORTLAND, OREGON 97208 Telephone (503) 224-4260
Lindsay Building 710 S.W. 2nd Avenue

February 26, 1968

Mr. Forrest Cooper
State Highway Engineer
Oregon State Highway Department
State Highway Building
Salem, Oregon 97310

Dear Mr. Cooper:

Subject: Portland International Airport Expansion -
I-205 Bridge Plan and Profile

In order to fully review the Port's proposed plan for the expansion of Portland International Airport, the Federal Aviation Administration agency has requested additional information, including a plan and profile of the I-205 Columbia River Bridge.

It is felt that the drawings your engineers prepare for our use at the Port hearing on March 12 will fill the FAA's needs. You may not have intended to show a cross section of the bridge structure, however, and it is requested that if possible at this time, this information be included. It would be greatly appreciated also if we could be provided with the drawings as soon as they are available to forward to FAA for their review of our airport plan. We and FAA officials realize such information would be preliminary in nature.

Thank you for your continued cooperation in this matter.

Sincerely,

THE PORT OF PORTLAND

George M. Baldwin

GEORGE M. BALDWIN
General Manager

A 1200

NOTED
F. B. KLABOE

RECEIVED
FEB 28 1968
OFFICE OF
STATE HIGHWAY ENGINEER

5905.

9

COPY

STATE OF WASHINGTON
DANIEL J. EVANS, GOVERNOR

WASHINGTON
STATE HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS
OFFICE OF DISTRICT ENGINEER
4200 MAIN STREET
VANCOUVER, WASHINGTON

February 26, 1968

Mrs. Yvonne Montchalin
Route 2, Box 378A
Washougal, Washington 98671

C.S. 2602 I-205 Bridge
across the Columbia River

Dear Mrs. Montchalin:

Reference is made to your letter of February 15, 1968 which contained several questions concerning the proposed FAI 205 interstate bridge across the Columbia River. The bridge will be designed by the State of Oregon with review by the Washington Highway Department after consummation of an agreement between the State of Oregon and the State of Washington.

The Oregon Highway Department has informed me that they are currently updating their estimate of cost of the bridge to include the possibility of its being shortened to accommodate the proposed Airport expansion. They have not completed the revised estimate, but I would be glad to forward the information to you when it is available. You are correct in that approximately 90% of the cost of the bridge will be from the federal interstate funds. The balance will be paid for by the two States. Although the agreement has not yet been finalized, it will undoubtedly provide for payment by each State in proportion to the cost of the structure as contained within the limits of the two States.

According to present federal requirements, all of the interstate system must be completed by 1972. If, however, federal funds are not available for completion of all of the interstate system by that time, I should imagine that consideration would be given to extending the completion date. Our schedule for completion of plans for the I-205 facility is still predicated upon completion of construction by 1972.

If the Portland Airport is extended as has been proposed, it will be possible for the I-205 facility to be shifted easterly on the Oregon side to provide for the proposed extension of the runways without affecting the present alignment on the Washington shore. We do not contemplate any change in the location of the facility in the State of Washington.

NOTED
TOM EDWARDS

METROPOLITAN ENGINEER
RECEIVED
FEB 27 1968
OFFICE OF
STATE HIGHWAY ENGINEER

copies: Edwards,
Blake, Marchant,
Morgan 2-26 ew

I hope this satisfactorily answers your questions and if we can provide any further information, please feel free to contact this office at any time.

Very truly yours,

W. A. BULLEY, P.E.
District Engineer

WAB:bar
cc: Mr. C. G. Frahl
Mr. C. H. Andrews w/att.
Rep. Robert O'Dell
Mr. Al Johnson, Oregon Highway Department

Mr. Porter,

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MAR 7 - [illegible]

8905

NOTED
R. L. PORTER

The Port of Portland

February 19, 1968

TO: FILE

FROM: E. R. ARNOLD

SUBJECT: OREGON STATE HIGHWAY DEPARTMENT - PORT OF PORTLAND MEETING FEBRUARY 16, 1968

The subject meeting was held at the Oregon State Highway Department office in Salem and was attended by Highway Department representatives Forrest Cooper, Rod Porter, Fred Klaboe and Tom Edwards. Port representatives included A. J. Heineman, Joe Kozlovski, and E. R. Arnold.

The purpose of the meeting was to discuss Port and Oregon State Highway Department planning at PIA and at Rivergate.

The I-205 freeway right-of-way requirements are not yet fixed, but are preliminarily estimated at 300 feet except where the median strip is omitted for the bridge. OSHD will determine the requirements and advise the Port.

Participation by OSHD and the Bureau of Public Roads in the cost of the dredge fill required for the road is felt to be likely, but has not yet been officially authorized.

Location of I-205 airport access road and interchange will be determined by coordination of Port and OSHD design. OSHD stated that a separate Marine Drive I-205 interchange should not be considered. A second interchange between Sandy Blvd. and the river would decrease the capacity of the freeway because of short merge and weave distances that would be created. It was suggested that relocated Marine Drive pass under the freeway and connect to the airport access road.

OSHD was furnished with correspondence which reflects projected ground vehicle traffic flow at PIA. State design is based on Design Hour Volume (DHV), and considers a rule of thumb capacity of 1500 vehicles per hour. This capacity can be increased to 2300 per hour under ideal conditions. It is of interest to note that capacity increases as speeds decrease from 55 mph to 40 mph. At speeds below 40 mph, however, the capacity drops off very quickly.

With respect to access roads leading onto the airport, including 82nd Avenue, the Port was referred to the County Road Department.

copies to
[illegible]
[illegible]
2-21-68

Upon inquiry as to possible timing of a Fremont bridge connection to PIA, OSHD felt it would be many years before this connection is built, if ever. It is doubted whether the cost of such a freeway can be justified, and further, it is felt that there will be greater traffic between PIA and Rivergate which will require access. Facilities for this traffic is currently being constructed by the County, although limited OSHD funds are being provided toward the work. The current Wilbur Smith Study will indicate the actual needs of the PIA-Rivergate traffic corridor. Joe Kozlovski is requested, by copy of this memorandum, to provide Wilbur Smith with appropriate PIA information for consideration.

OSHD has corresponded with the Washington Highway Department regarding alignment of the I-205 bridge but is not pursuing the matter. Suggested realignment of the bridge will have no effect on PIA if it is realized.

The OSHD will submit preliminary plans of the bridge for Port use at the currently planned March 12 hearing.

With respect to Rivergate, the OSHD was furnished with a DMJM technical report, and requested a large scale Precise Plan of the road layout. OSHD is also to be furnished with a Vancouver Lake Industrial Study Report.

The Port's goal is to have the outer loop freeway system completed to provide direct freeway access to the Beaverton-Tualatin Valley area. Location and alignment of bridges connecting with and serving Rivergate are of prime concern to the Port but must also fit in with the overall freeway and road system.

Of immediate concern to the Port is the freeway right-of-way width in the Phase I area and the affect of the right-of-way on the Waterway Terminal property, the boundary of which has not yet been established. Review of the report and consideration of the Rivergate plan in general will require an estimated two weeks, at which time an OSHD response will be submitted to the Port for its use and information

ERA:mc

cc: George M. Baldwin, A. J. Heineman, George D. Hext, R. F. Dow, O. Beeman,
J. Kozlovski, L. E. Arnold
Forrest Cooper (with attachments)

[illegible]
FEB 10 1968

FOR FILING

OREGON STATE HIGHWAY DEPARTMENT

INTER-DEPARTMENT CORRESPONDENCE

Salem, Oregon 97310
February 16, 1968

**SUBJECT:**

**To:** MEMO TO THE FILE

At 10:30 a.m. this date a meeting was held between members of the Port of Portland and the State Highway Department in Mr. Cooper's office. The following people were present:

| | |
|---|---|
| Joe Kozlovski | Port of Portland |
| E. R. Arnold | Port of Portland |
| A. J. Heineman | Port of Portland |
| Al Benkendorf | Guest of Port's from Pennsylvania |
| Forrest Cooper | State Highway Department |
| R. L. Porter | State Highway Department |
| Tom Edwards | State Highway Department |
| F. B. Klaboe | State Highway Department |

The first item on the agenda was a discussion of the proposed reconstruction of the Portland International Airport and its effect on the State Highway location for I-205.

Prior to this meeting, the Port had given us the coordinates of the end of the proposed new runway. We have therefore arrived at the horizontal and vertical alignments for the proposed location of I-205 east of the airport and across the Columbia River to connect with the established corridor in the state of Washington.

The Port advised that they would go to a public hearing on March 12 and that they would like us to deliver to them, at least one week prior to this hearing, maps showing our proposed alignment (both vertical and horizontal) and a schematic drawing of the proposed structure. They would also like us to show on the plan map the right-of-way limits that we would require. They were advised that we would prepare such maps and deliver them for the Port's use at the hearing.

They also asked that we study the interchange patterns that would: (a) serve the airport facility; and (b) Marine Drive. Their present idea is that Marine Drive will be relocated south of the airport and would intersect I-205 approximately halfway between the River and Sandy Boulevard. This is something that they will have to work out with the County before it can be firmed up since this is a County facility. We advised them that it did not appear feasible to interchange both Marine Drive and the airport because of the short distance between them. We will, however, study the matter and see what is a feasible plan for this development. In connection with this, they left us a hand-colored map showing the proposed airport expansion facility.

Also left with us was a written analysis of the traffic loads that can be expected in future years as the result of the airport expansion. These data apparently show that there will be a DHV in the year 2000 of approximately 6,600 desiring to move between the freeway and the airport. We will use these data and information of our own that we may have in developing the interchange patterns necessary to serve the airport and the surrounding country.

The question of the future Fremont Freeway was brought up by the Port and they were advised by Mr. Cooper that the Fremont Freeway was not on any State Highway System and that no one knows whether it will ever be constructed or not.

The Port inquired whether or not the Columbia Boulevard freeway was a State project. They were advised that it is not a State project and that they should confer with the County about it.

The Port also advised us that they had had conversations with the Game Commission and it appeared that they would be able to acquire all of Government Island from them. If so, they would satisfy the boat owners by constructing a small boat basin in the remnant of Government Island not needed for the runway or highway facility. They further stated that hydraulics experts had advised them that there were no hydraulic problems connected with the proposed filling of Columbia River to accommodate the new airport. Apparently, they will have to lower the boat channel about 10 feet to keep the velocities of the Columbia River at about the same range as those which now exist.

The second item on the agenda was a discussion of the development of the Rivergate industrial area. The Port left with us a comprehensive volume developed by consulting engineers showing the various stages that this development would pass through. One of the important features of the overall plan is the development of a Tualatin Freeway. This freeway would begin at the Sunset Highway and then pass through the Tualatin Mountains to the north and cross the Willamette River downstream from the St. Johns Bridge. It would continue through the proposed Rivergate area and then cross the Columbia River west of Vancouver. The Port asked us to study the proposal and pick a tentative alignment for it from the Sunset Highway to the Willamette River. The alignment between the Willamette River and the Columbia River has been selected by the Port. They would, however, like us to define a right-of-way through the Rivergate industrial area so that they can set it aside when laying out the property for the industrial development. They were advised that we would do this work and submit a report to them in the near future. It is my estimate that this will take at least one month to accomplish.

FB Klaboe

F. B. Klaboe
Assistant State Highway Engineer

FBK:srb

cc: Forrest Cooper
R. L. Porter
Tom Edwards
F. D. Morgan
I. D. Merchant
H. S. Cox
A. E. Johnson

NOTE: Mr. Edwards: Please supply the schematic drawings for the proposed structure across the Columbia River.
Mr. Morgan: Please make the studies for both the airport and Rivergate facilities. Also prepare the vertical and horizontal alignment maps to be used at the Port's upcoming hearings. All information needed for the hearings should be delivered to my office prior to February 29.

FBK

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JAN 31 1968

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Const
R/W
E.P.F.

February 1, 1968

Mr. C. G. Prahl, Director
Washington Department of Highways
Highways-Licenses Building
Olympia, Washington 98501

Dear Mr. Prahl:

Re: Interstate 205

We have recently been advised by the Port of Portland that its proposed airport revision is now firm and that upon completion of a feasibility report now under preparation, a public hearing will be held, in March, with contracts for the first dredging scheduled for August.

Enclosed for your information is an aerial photograph on which is superimposed the location for I-205 that will fit with the Port's plans. This is shown by the solid red line. Also indicated is a dashed red line which we offer for your consideration as something that may bear investigation. We would be pleased to have you look into this suggestion and discuss its feasibility with us.

As soon as a definite date has been set for the hearing, we will see that you are advised.

Very truly yours,

Forrest Cooper
State Highway Engineer

Enclosure
cc: W. A. Bulley, District Engineer
Washington Department of Highways
4200 Main Street
Vancouver, Washington 98663

bcc: R. L. Porter
Tom Edwards
F. B. Klaboe
Victor D. Wolfe
L. W. Rulien

RLP:ms jes

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GEORGE M. BALDWIN
General Manager

THE PORT OF PORTLAND

BOX 3529 PORTLAND, OREGON 97208 Telephone (503) 224-4260
Lindsay Building 710 S.W. 2nd Avenue

January 22, 1968

Oregon State Highway Department
State Highway Building
Salem, Oregon 97310

Attention: Forrest Cooper, State Highway Engineer

Gentlemen:

Please refer to our earlier conversations regarding the expansion of Portland International Airport by constructing the North Runway on a fill to be placed into the Columbia River. Enclosed is a plan showing the proposed runway and cut through Government Island. Note also a suggested I-205 alignment has been shown on this plan. This I-205 alignment with the roadway placed on the airport fill at an elevation of 35' M.S.L. appears to meet criteria established for the design of glide slope approach areas.

The runway location as shown is satisfactory to The Port of Portland, and it is anticipated that it would be changed only at the insistence of a regulatory agency having authority over some phase of the development of our plan.

Assuming a successful outcome of present studies and discussions with various interested parties, it is planned that an application for the cut and fill and channel relocation will be submitted to the Corps of Engineers during March, 1968. You may be assured that we will inform you immediately of events that alter our present plan and time schedule.

If this plan is compatible with the Oregon State Highway Department planning, it is requested that you inform

Commandant OAN-5
U. S. Coast Guard
1300 E. Street, N.W.
Washington, D. C. 20226
Attn: Commander Olson

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OFFICE OF
STATE HIGHWAY ENGINEER

Continued.............

*Major Continuing Projects:*
**AVIATION**—PORTLAND INTERNATIONAL AIRPORT, PORTLAND-HILLSBORO AIRPORT, PORTLAND-TROUTDALE AIRPORT, AND SWAN ISLAND HELIPORT
**LAND DEVELOPMENT**—SWAN ISLAND INDUSTRIAL PARK, RIVERGATE INDUSTRIAL DISTRICT, AND PORT CENTER
**MARINE**—PIPELINE DREDGE OREGON, STERNWHEEL STEAMER PORTLAND, AND SWAN ISLAND SHIP REPAIR YARD

Forrest Cooper, State Highway Engineer
Oregon State Highway Department
Page 2

January 22, 1968

that a new alignment is being considered, and request that the present bridge application be held pending submission of a new plan.

Your cooperation is appreciated.

Very truly yours,

THE PORT OF PORTLAND

George M Baldwin

GEORGE M. BALDWIN
General Manager

ENC:

CORPS OF ENGINEERS

Stomptowe
Weston
VICIN

Nautical
I EISER LA
NUT
Dike 25Dolphin
Machine Dol.

VICINITY MAP
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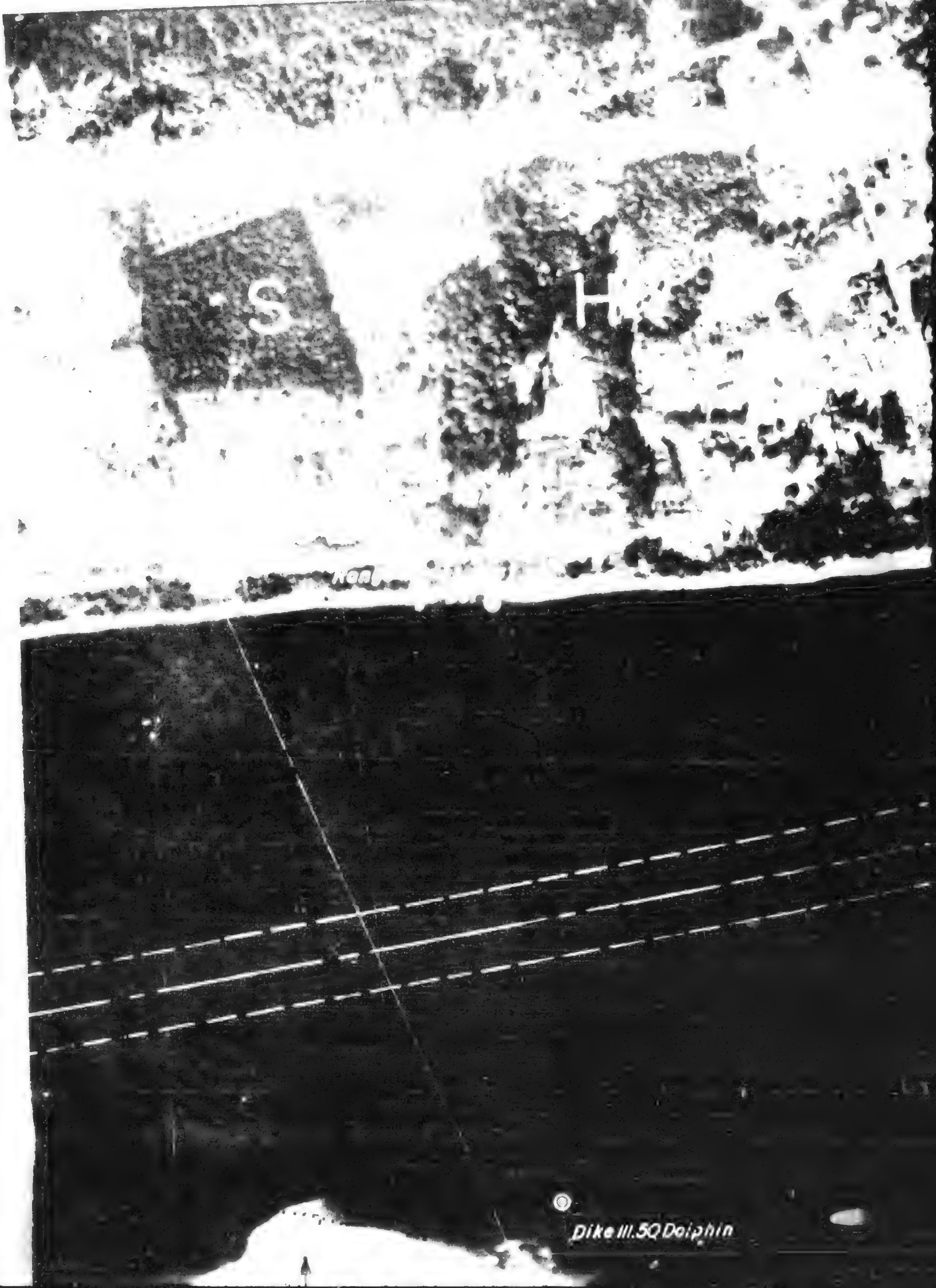
Ash Tr.
Al-Cop
LANDING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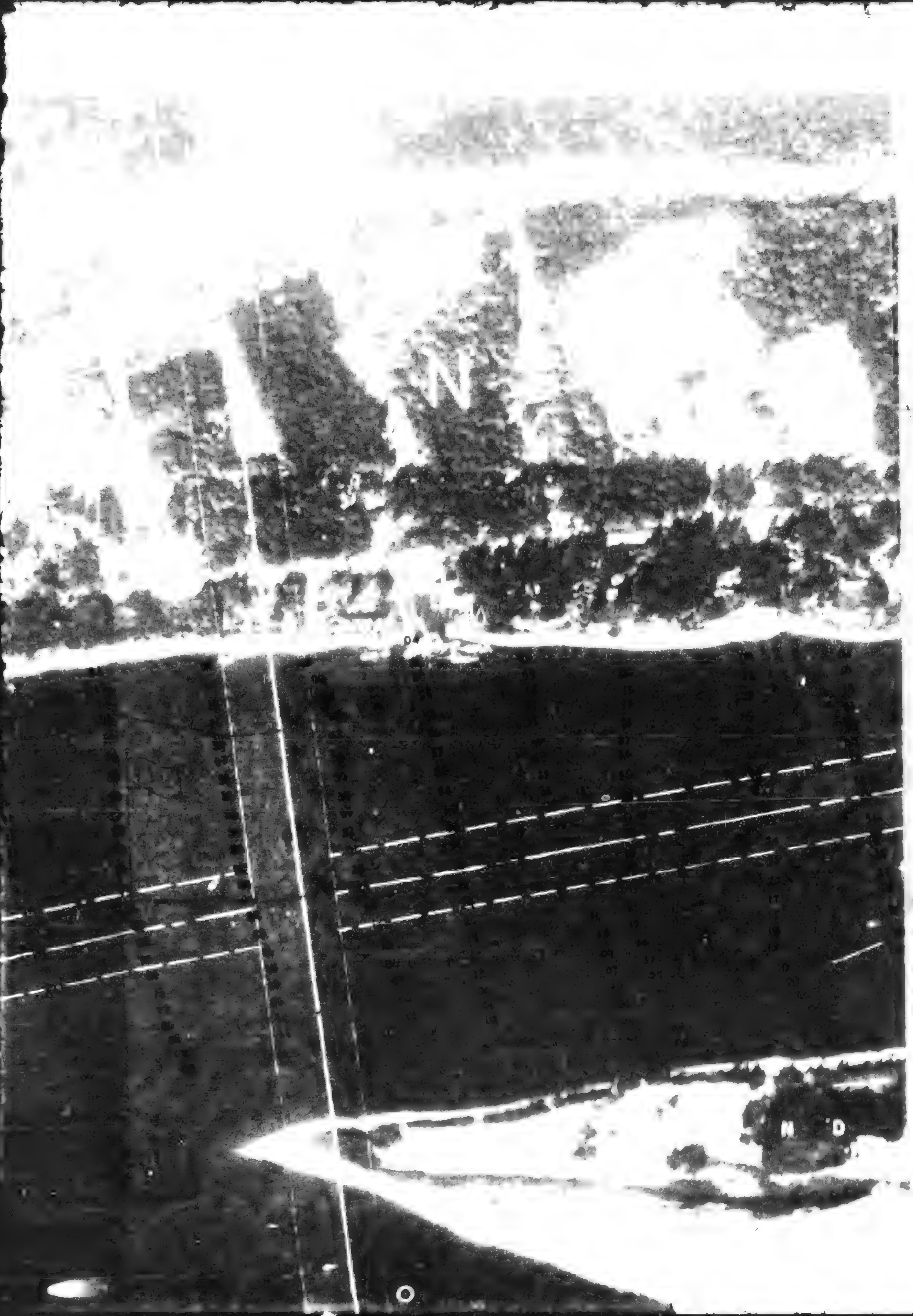
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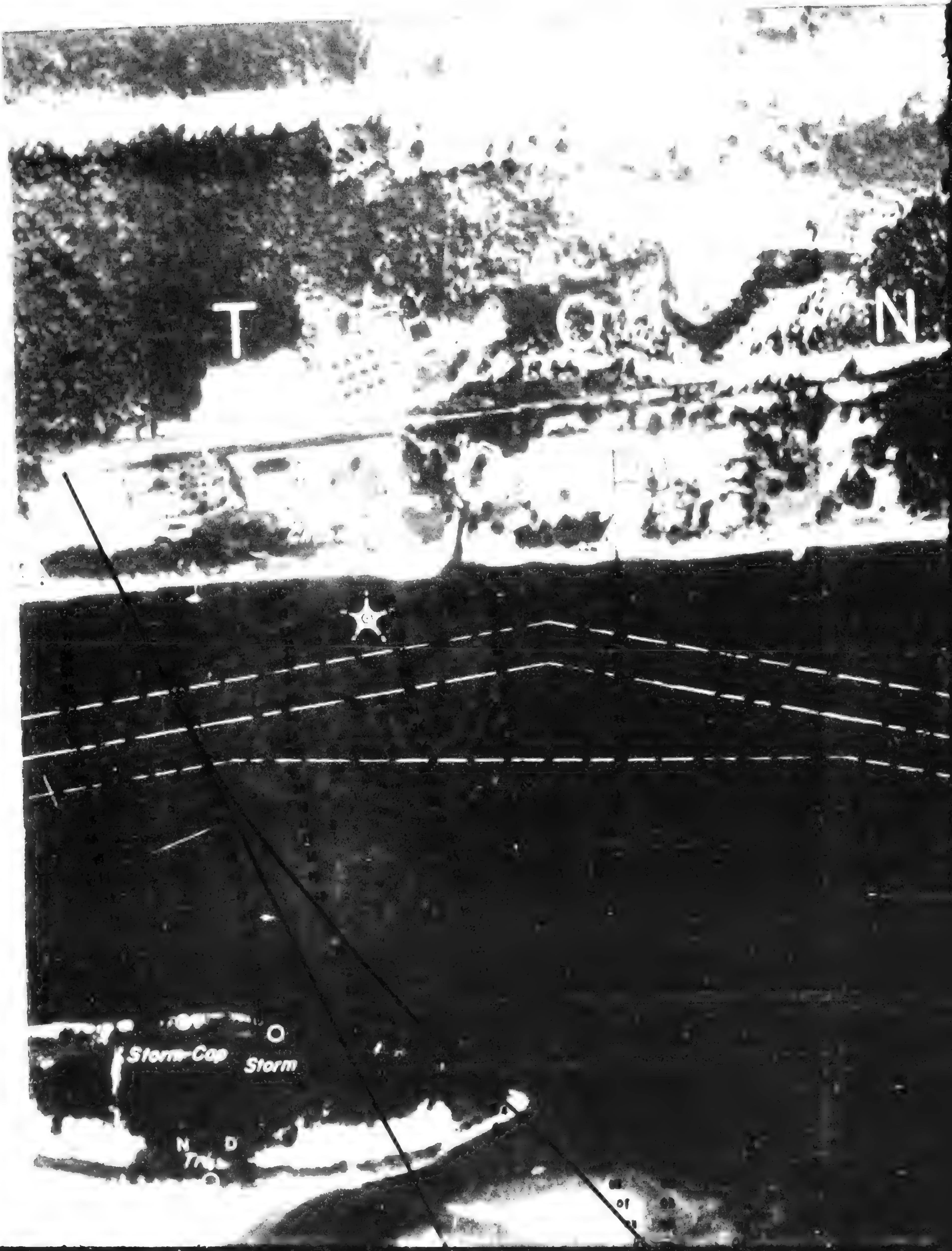
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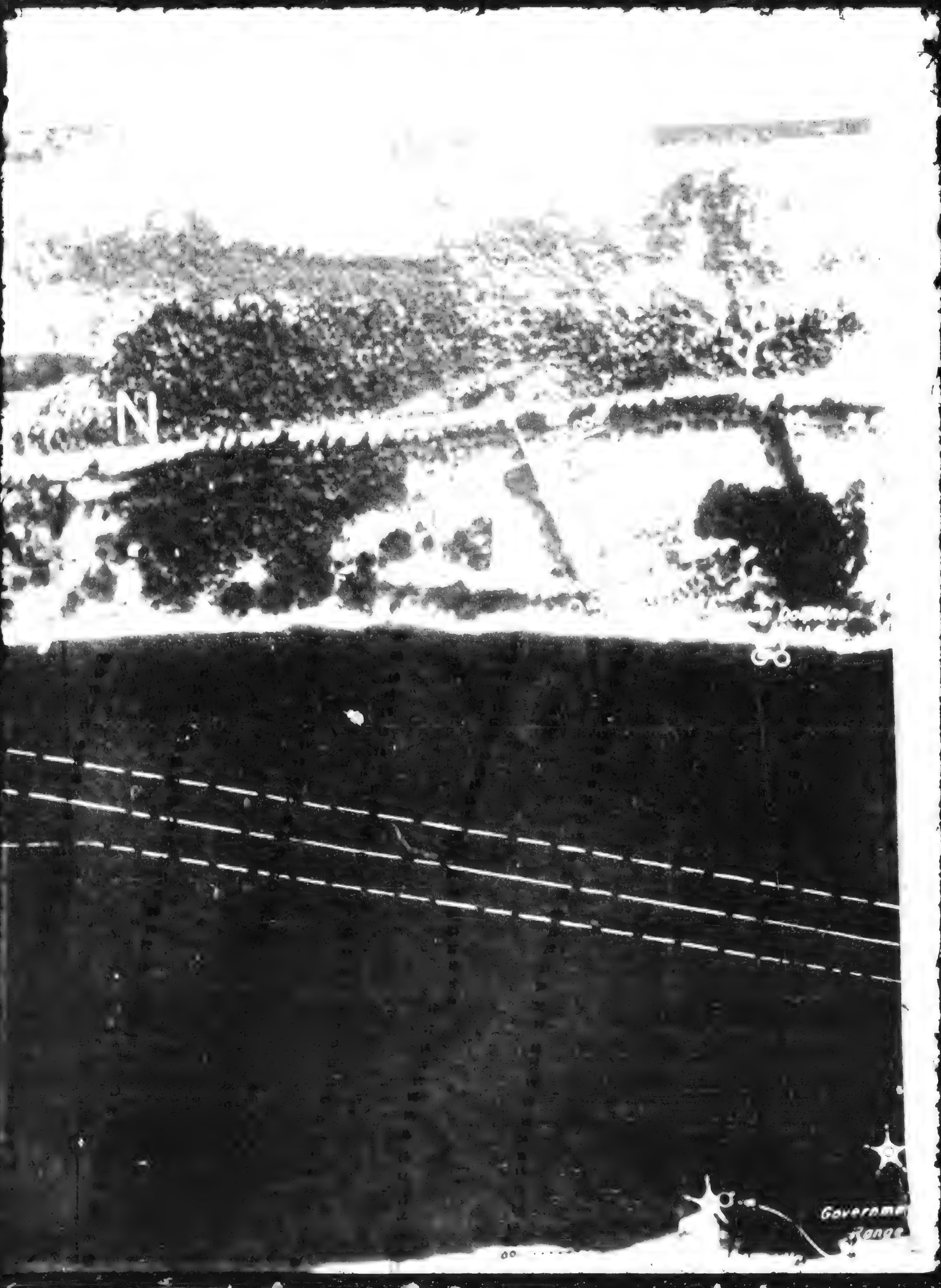
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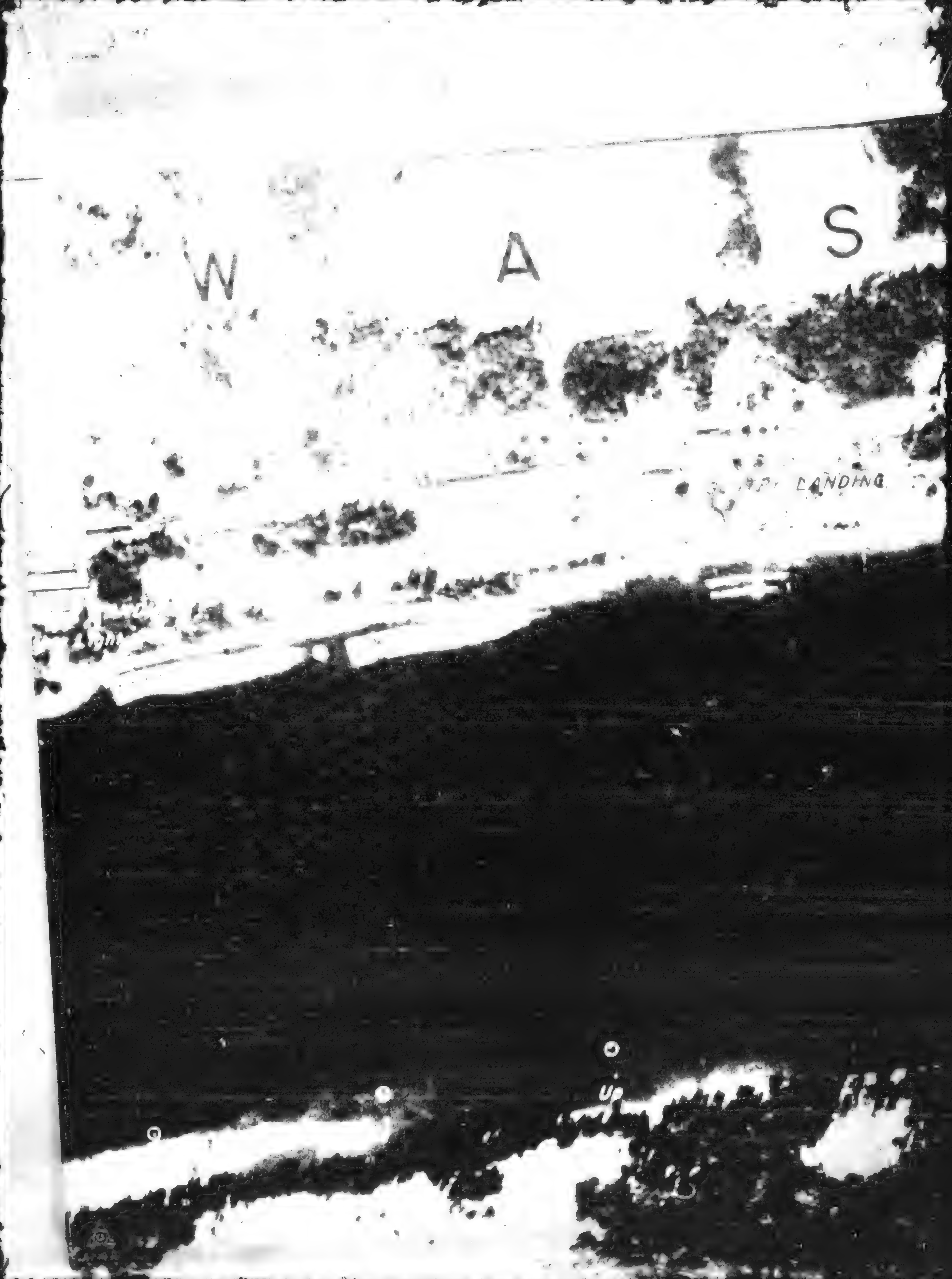

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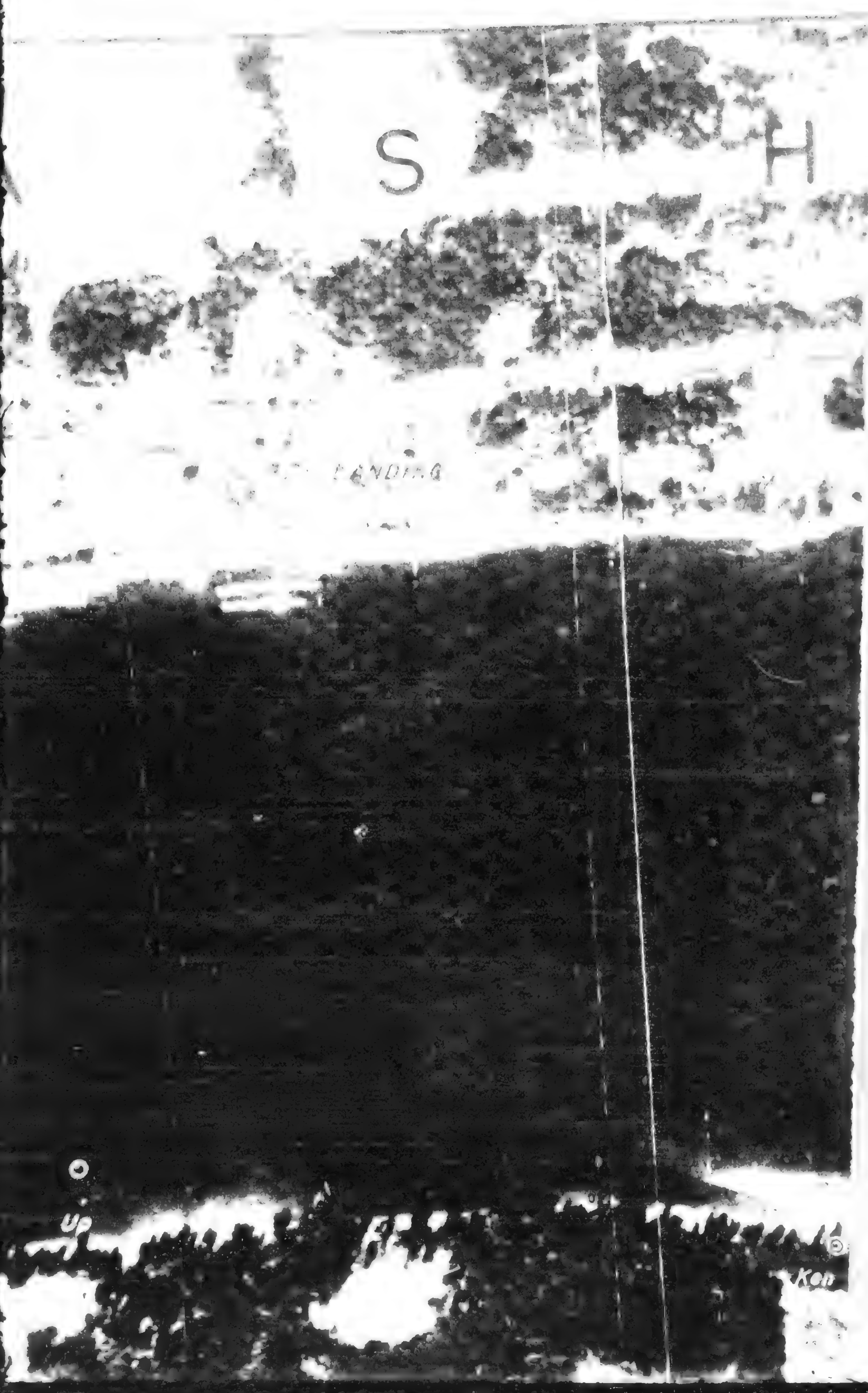
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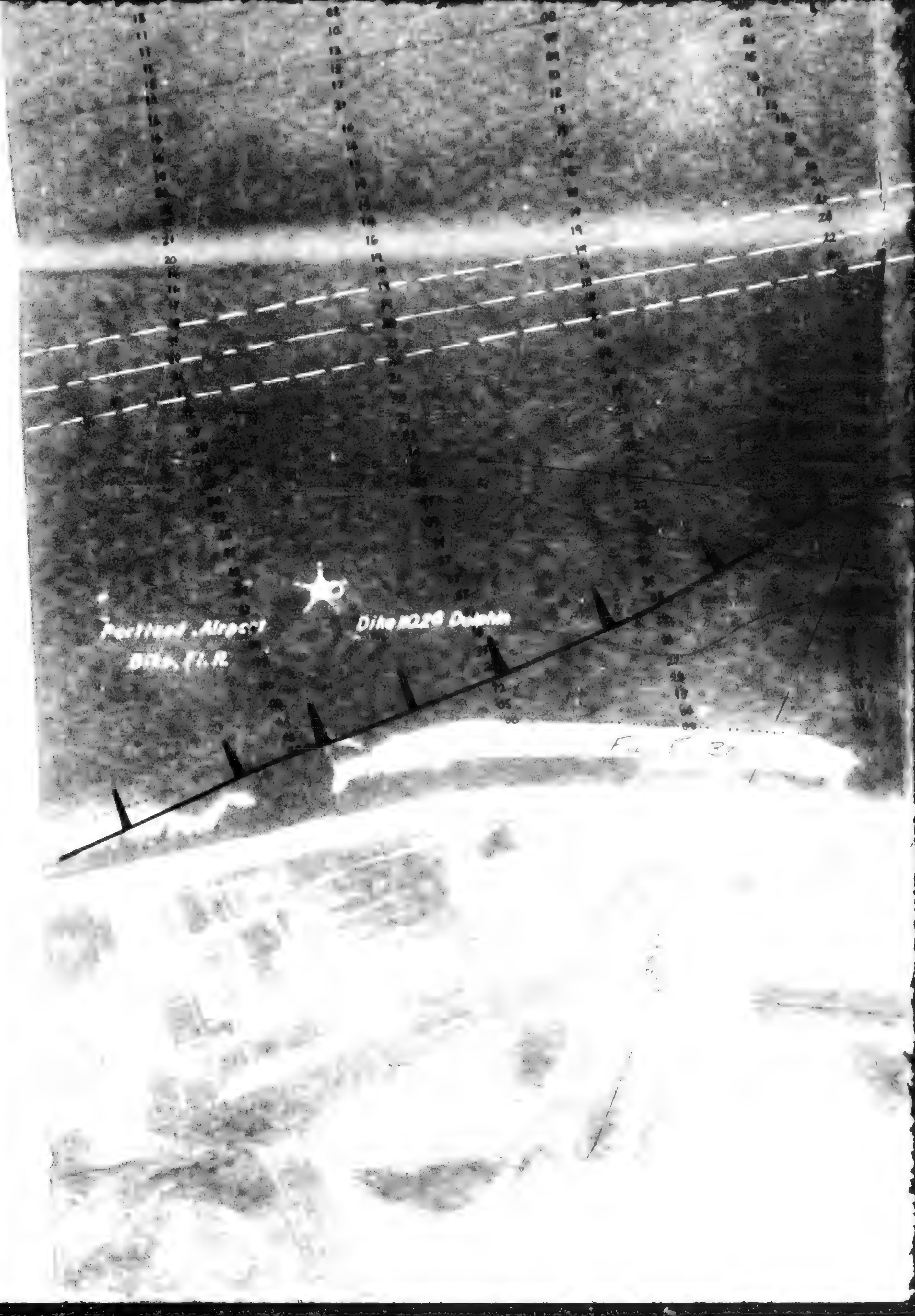
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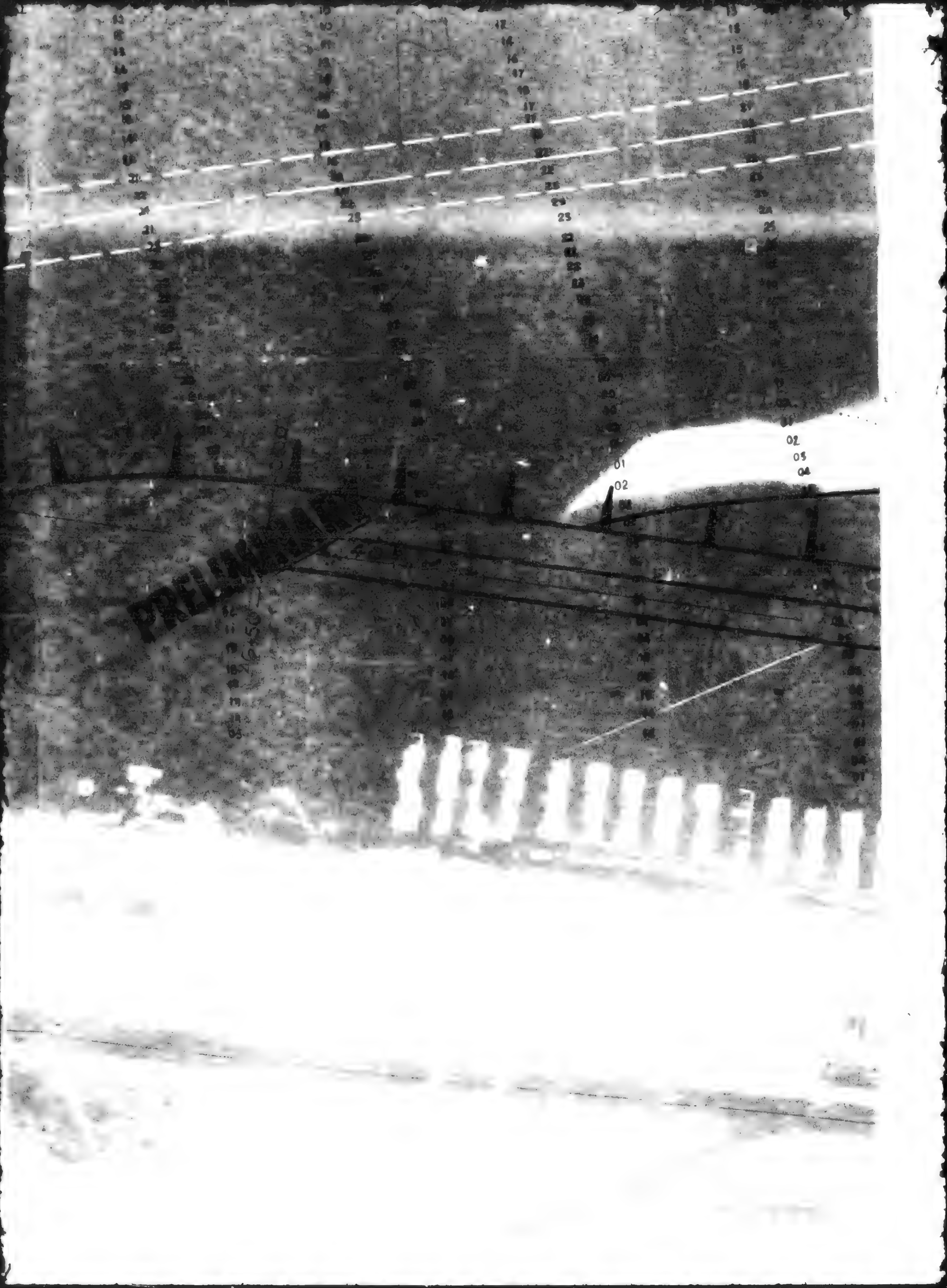

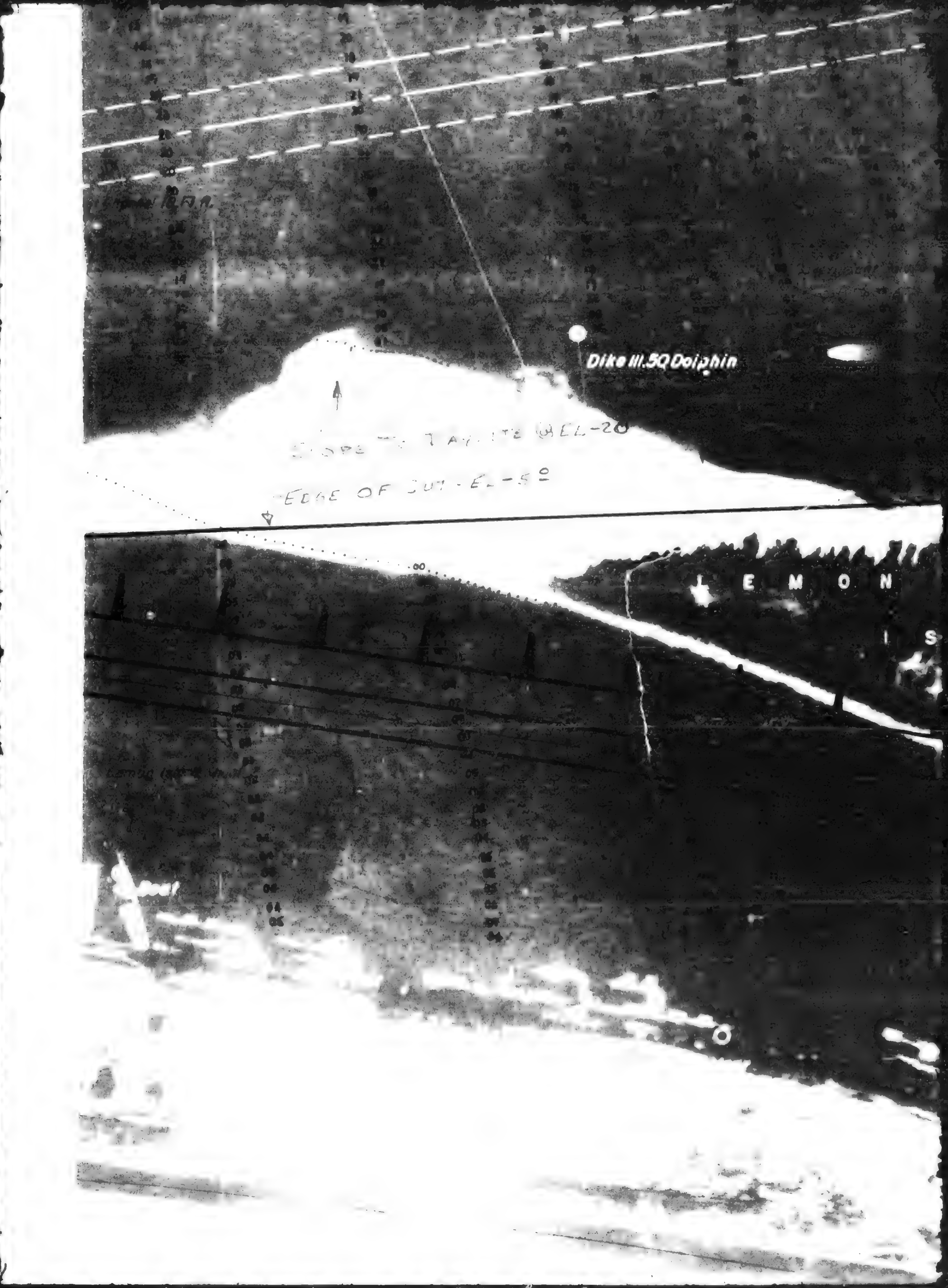
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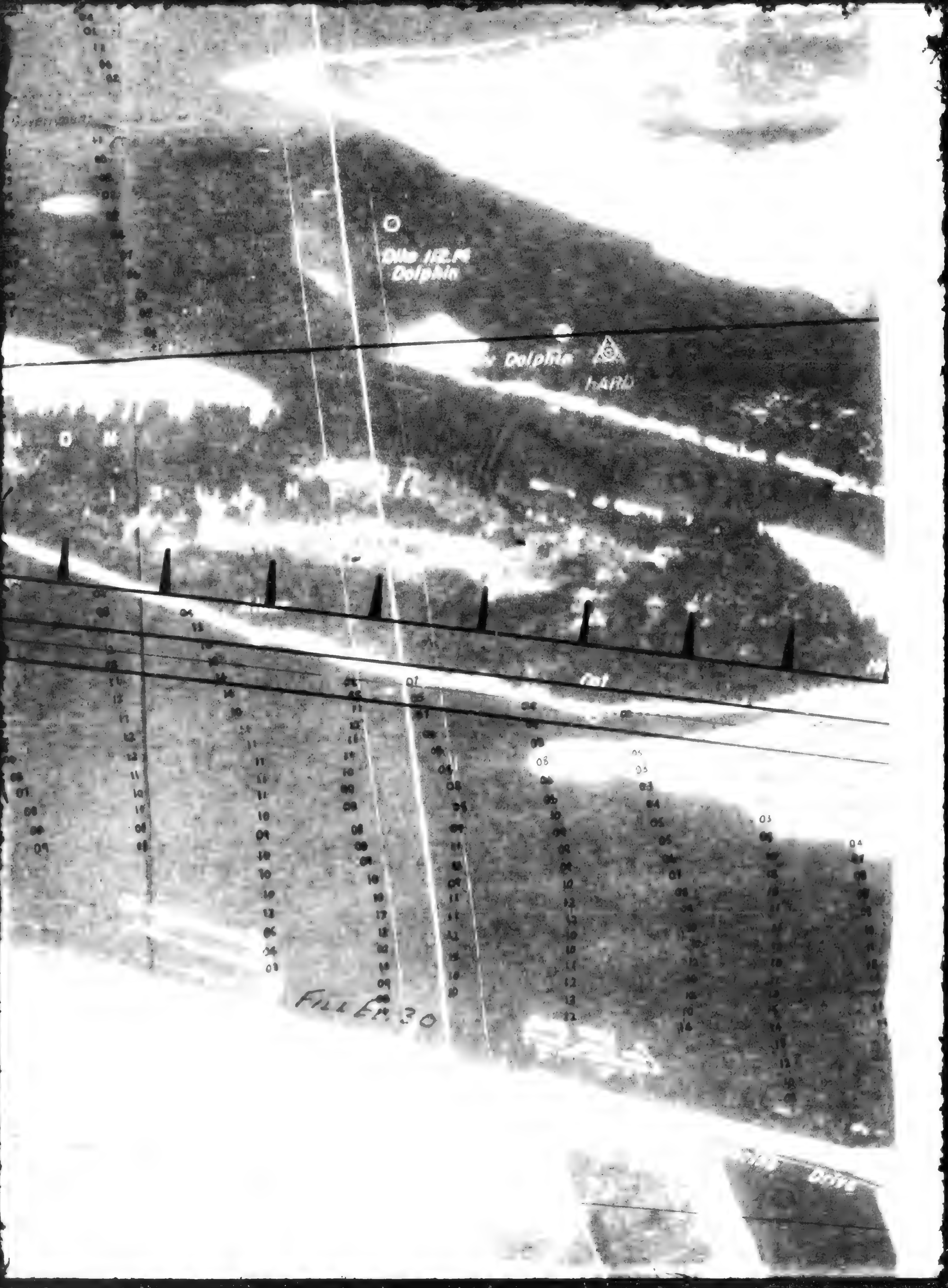
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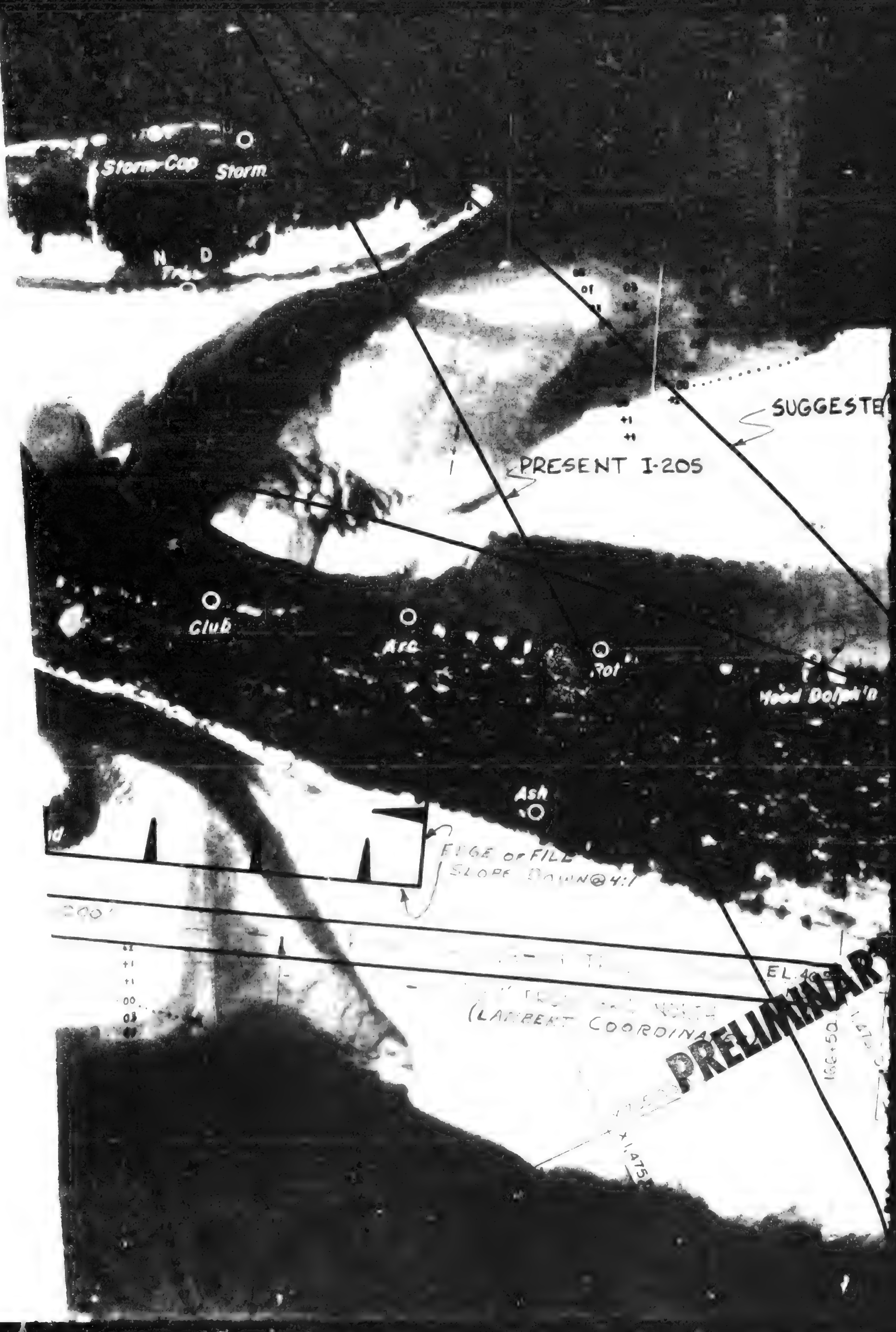
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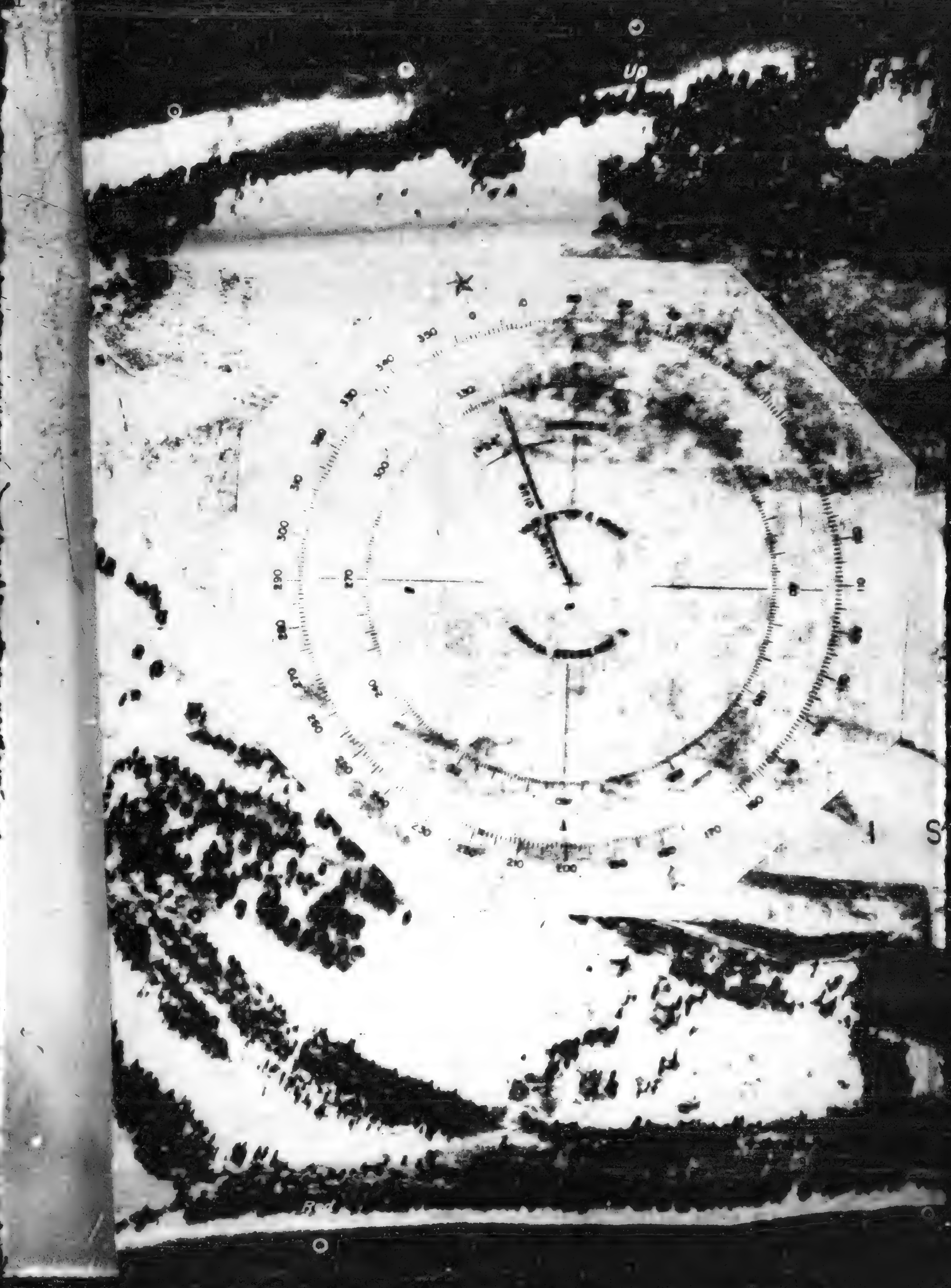
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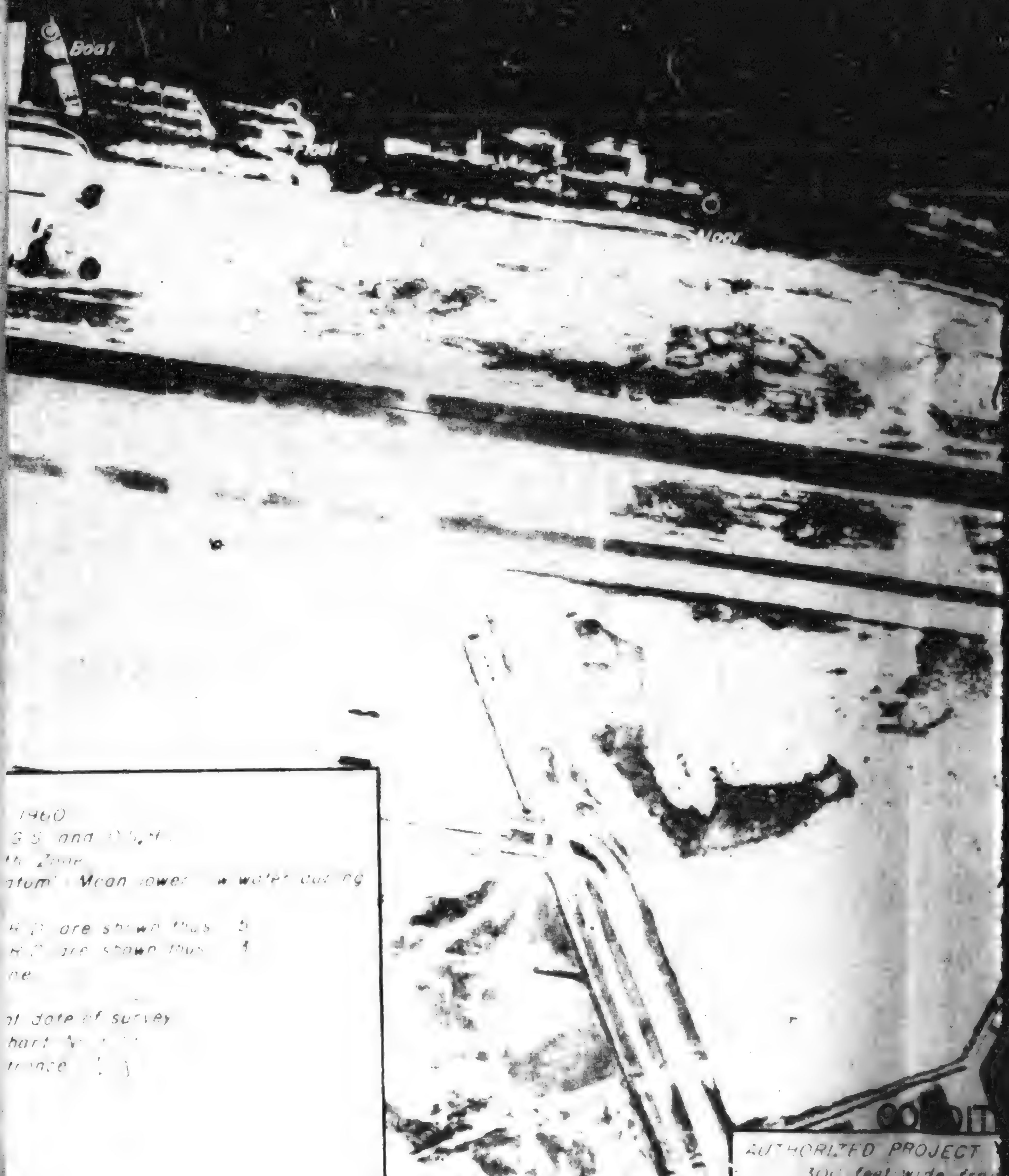
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# COLUMBIA RIVER

TWEEN VANCOUVER, WASH. AND THE DALLES OREGON

## AIRPORT BAR

13 APRIL 1967

U. S. ARMY ENGINEER DISTRICT, PORTLAND

CL-110-25

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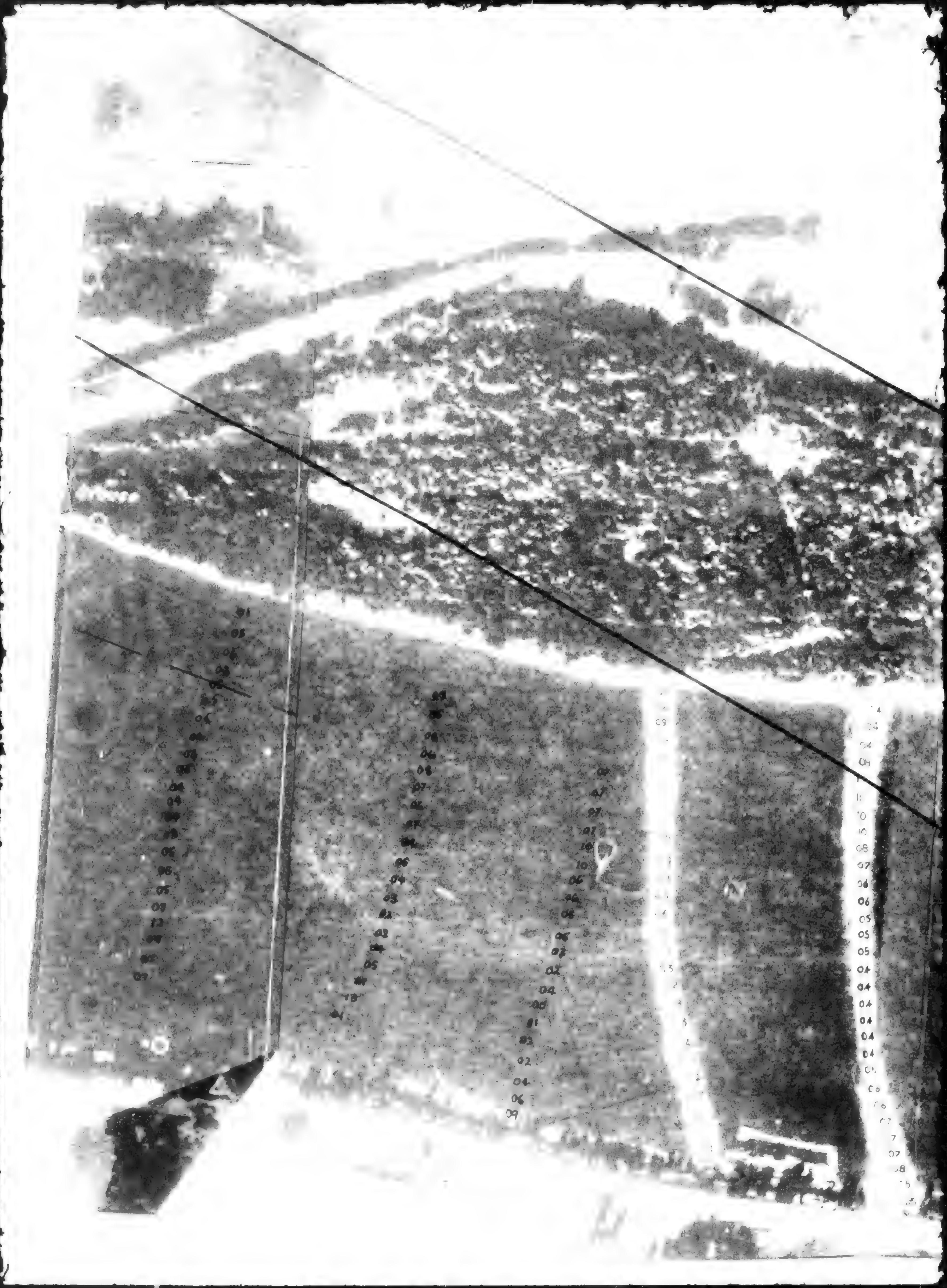

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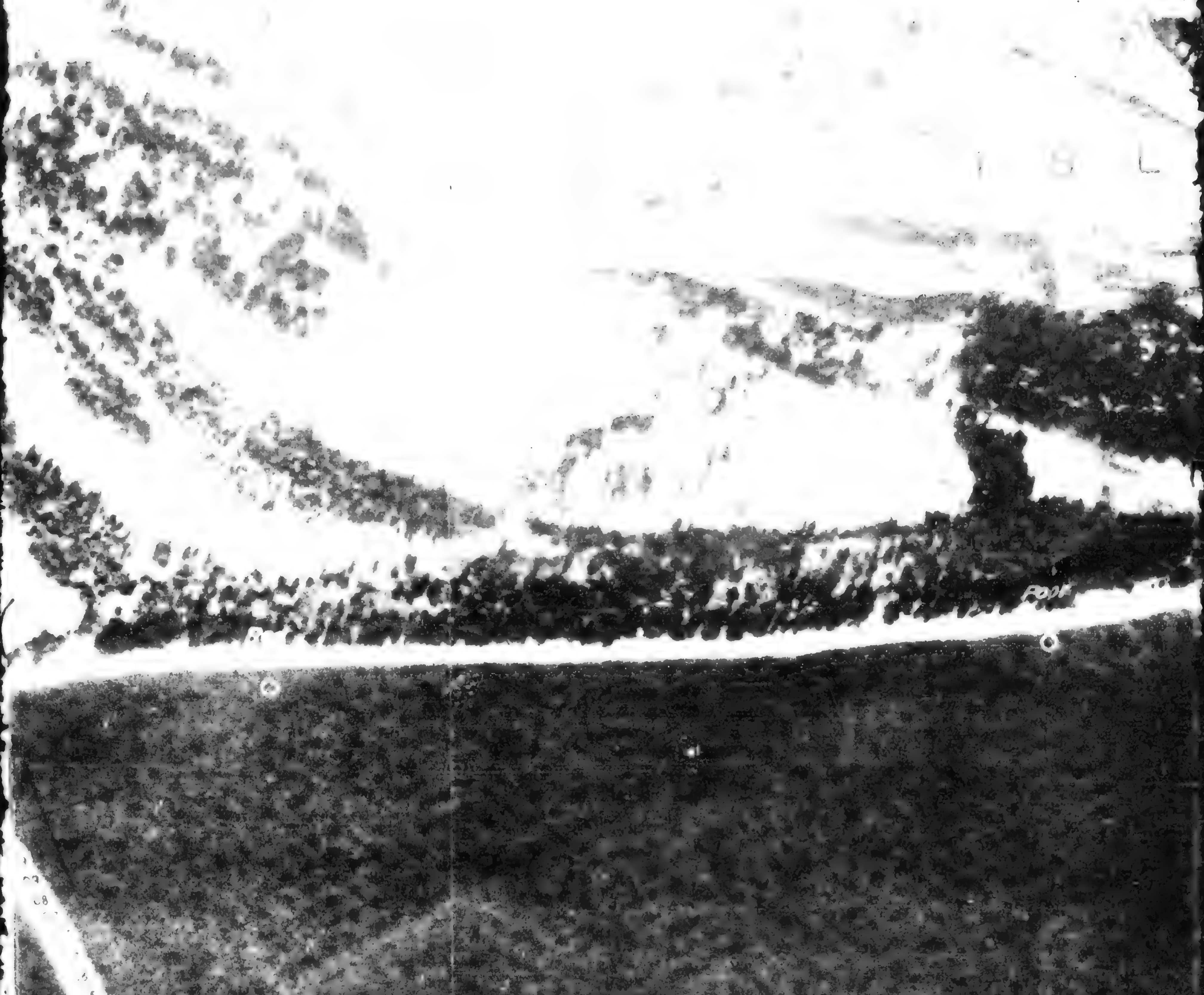
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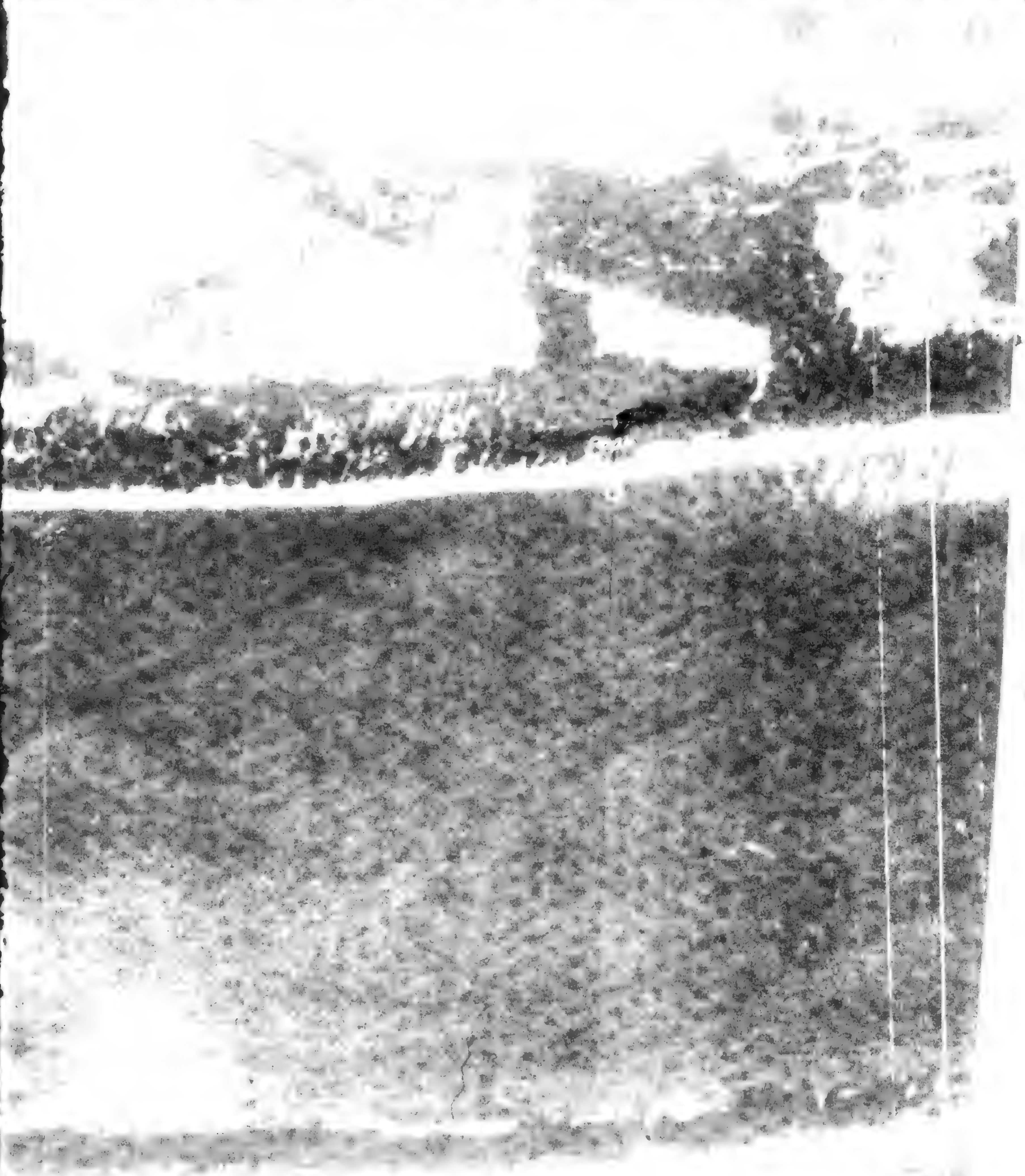

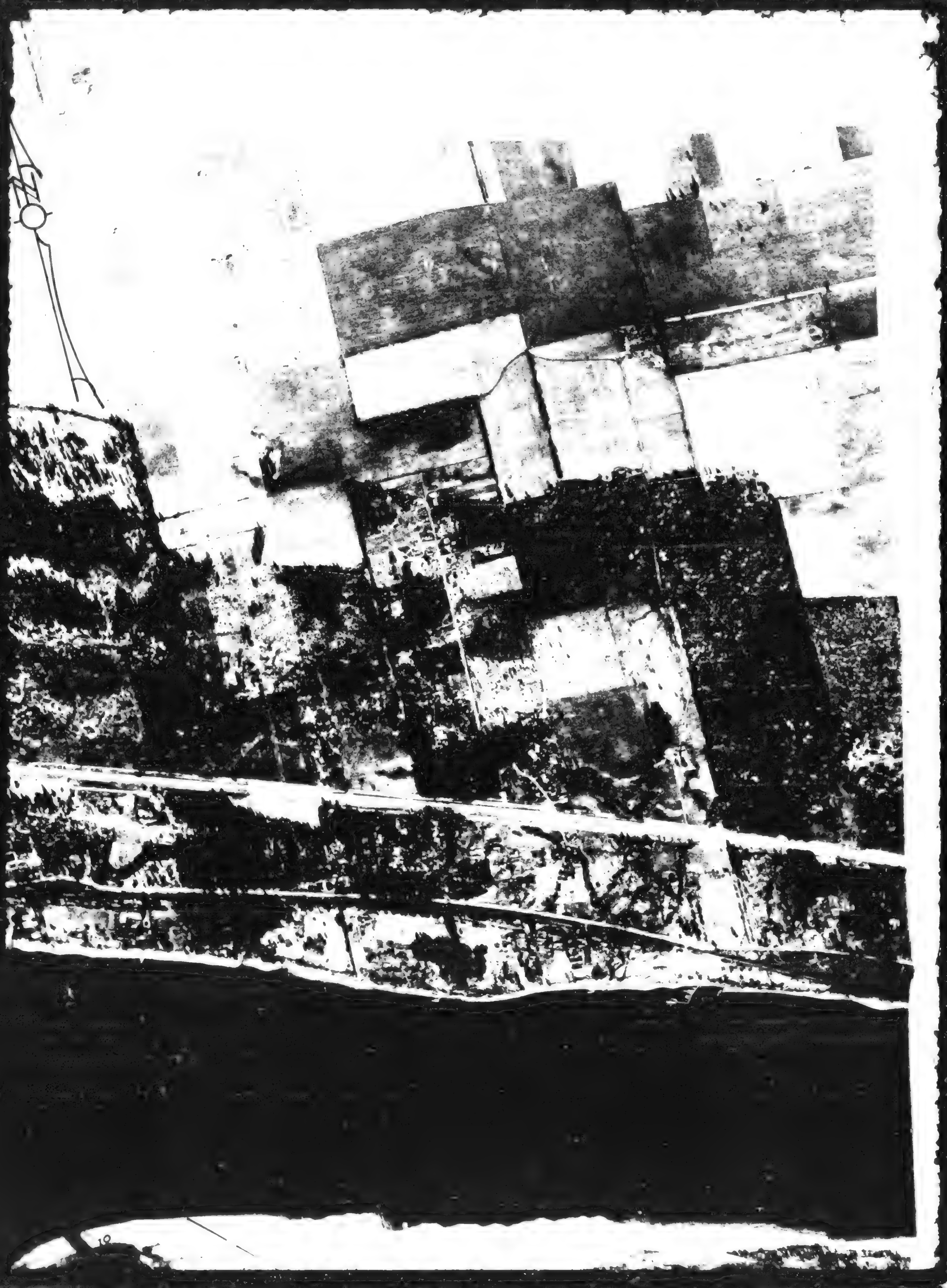
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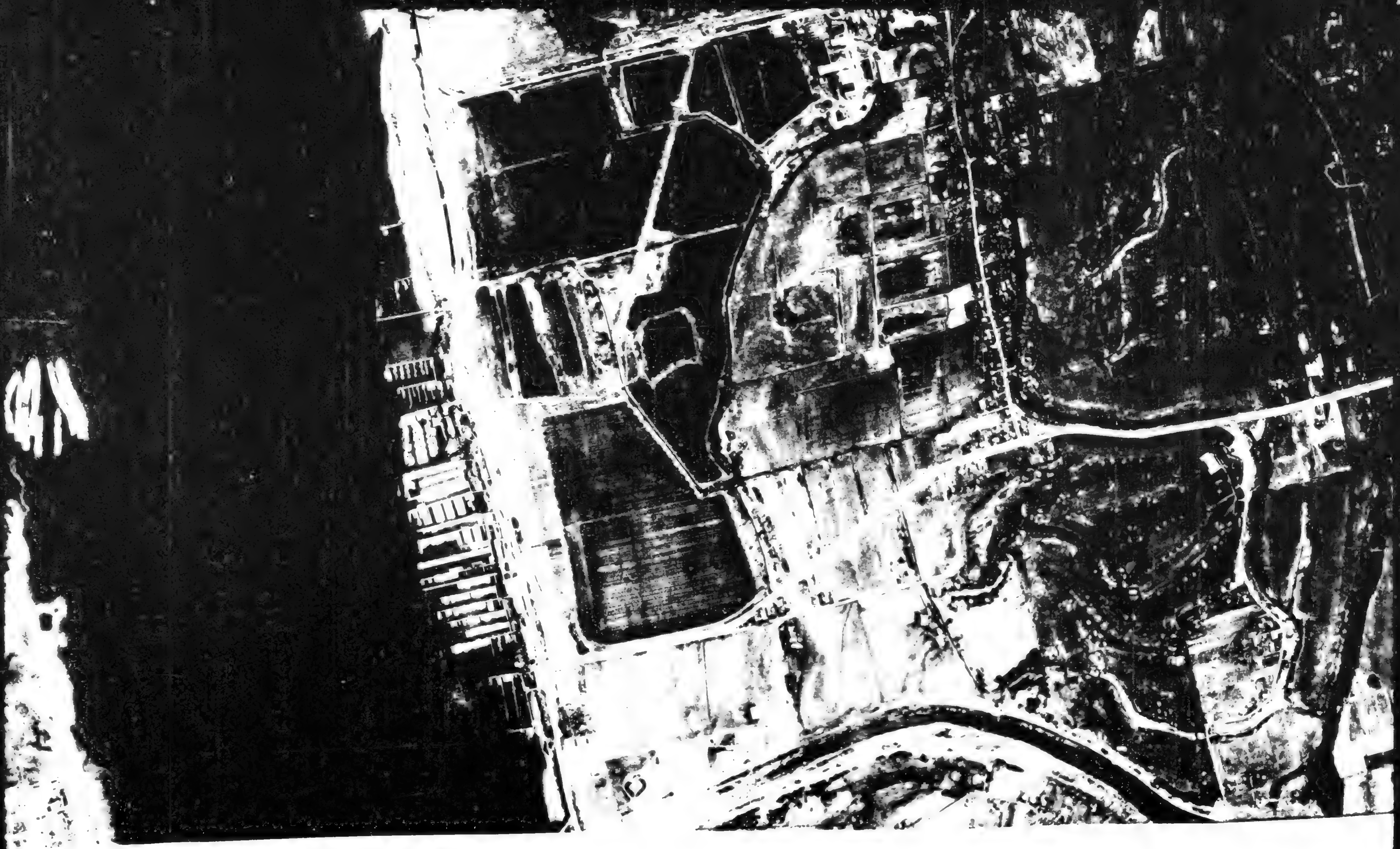

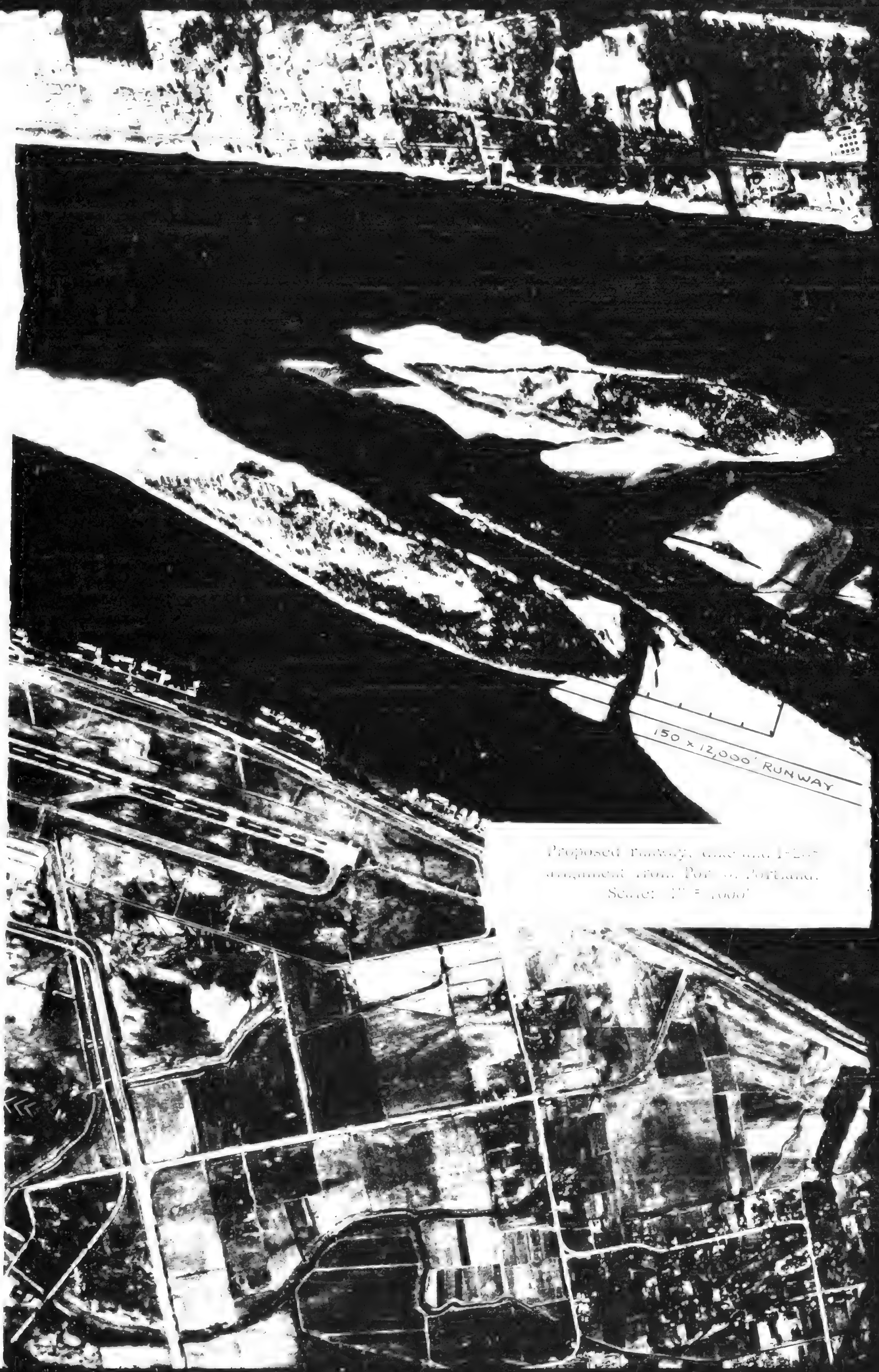
150 x 12,000' RUNWAY

Proposed runway, dike and I-205 alignment from Port of Portland.
Scale: 1" = 1000'

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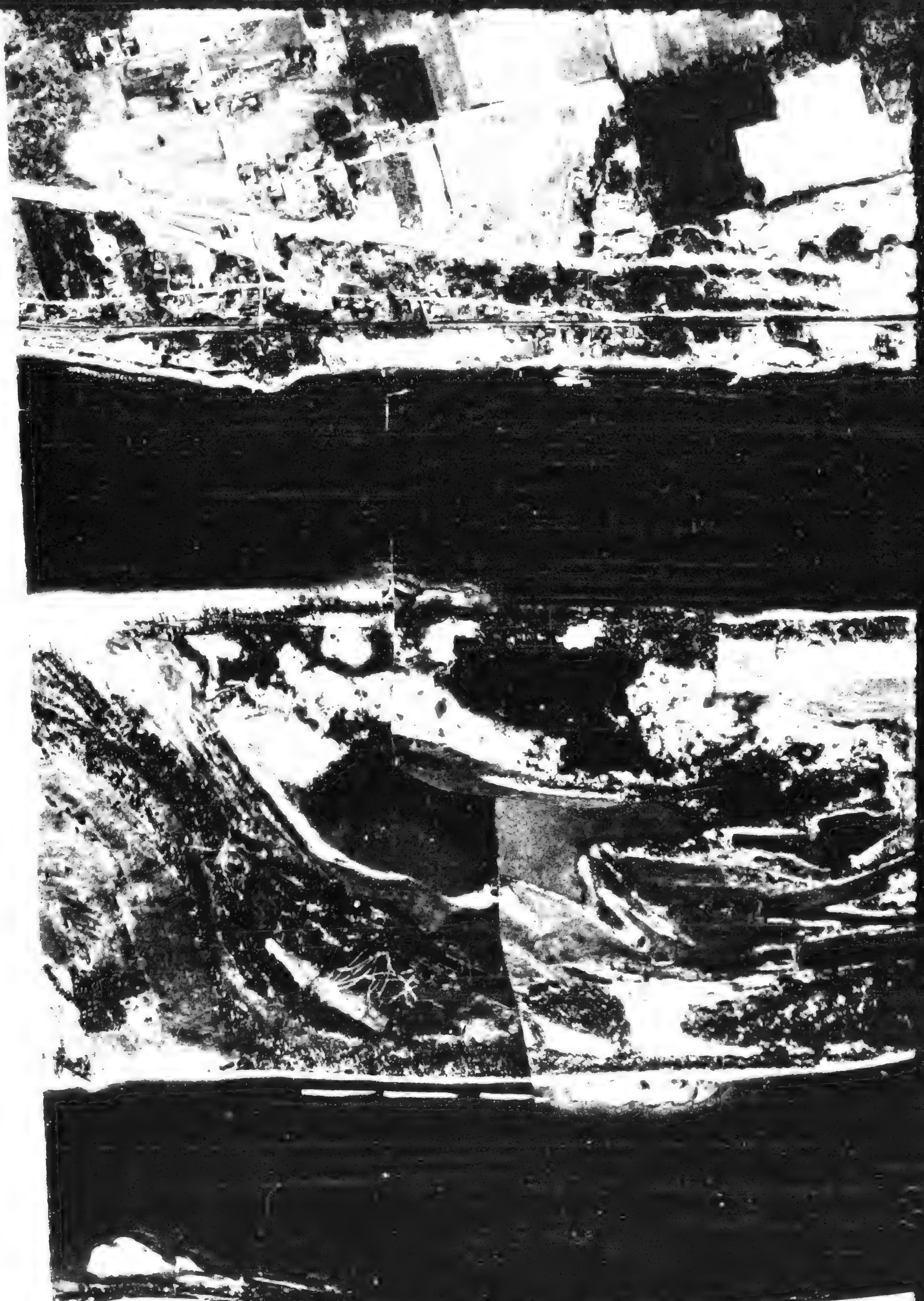

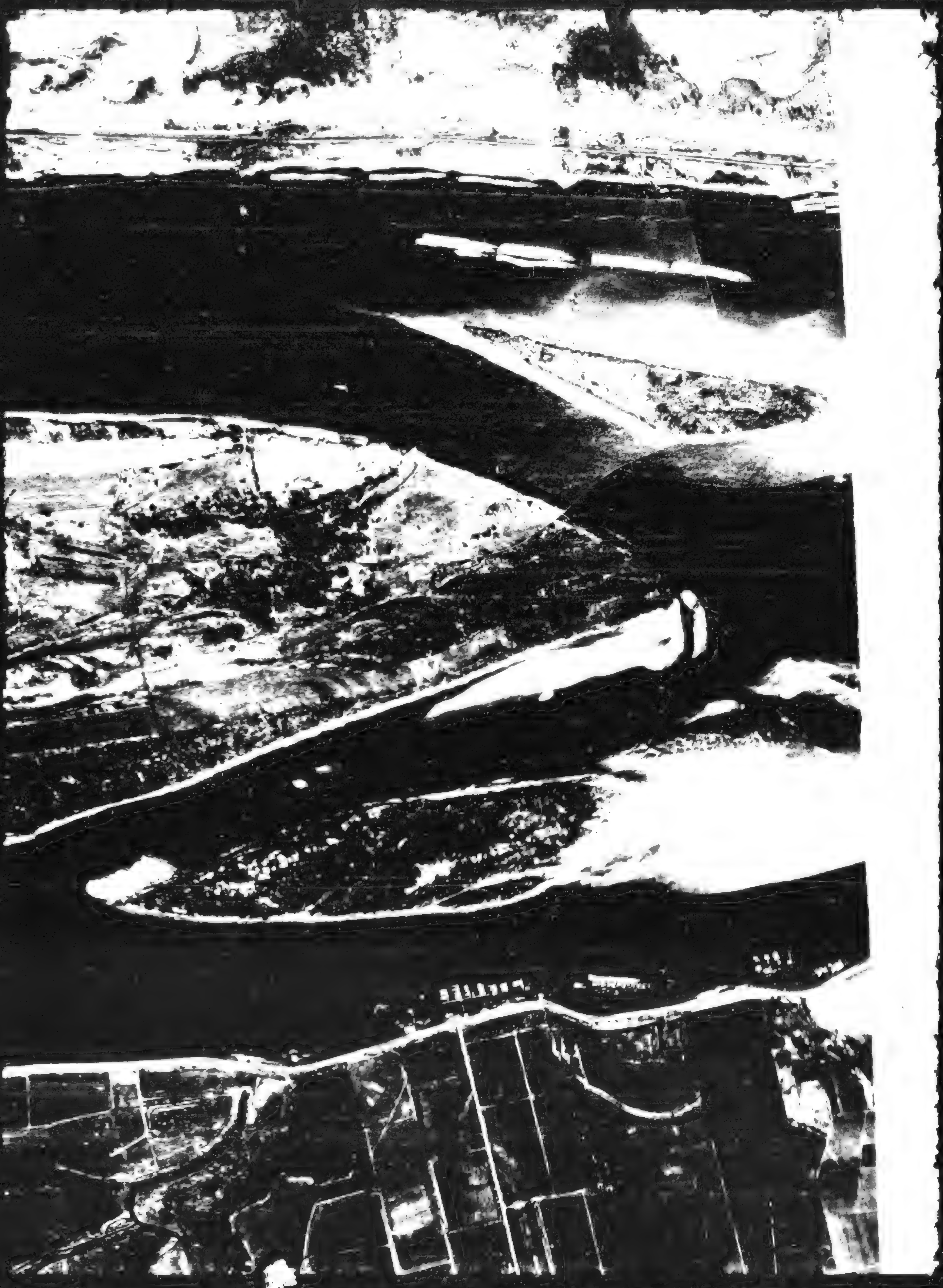

8915

8

RECEIVED
FORM 2-30 6CM 10-65
FEB 23 1968

FOR FILE

OREGON STATE HIGHWAY DEPARTMENT

INTER-DEPARTMENT CORRESPONDENCE

Salem, Oregon 97310
February 16, 1968

**SUBJECT:**

To: MEMO TO THE FILE

At 10:30 a.m. this date a meeting was held between members of the Port of Portland and the State Highway Department in Mr. Cooper's office. The following people were present:

| | |
|---|---|
| Joe Kozlovski | Port of Portland |
| E. R. Arnold | Port of Portland |
| A. J. Heineman | Port of Portland |
| Al Benkendorf | Guest of Port's from Pennsylvania |
| Forrest Cooper | State Highway Department |
| R. L. Porter | State Highway Department |
| Tom Edwards | State Highway Department |
| F. B. Klaboe | State Highway Department |

The first item on the agenda was a discussion of the proposed reconstruction of the Portland International Airport and its effect on the State Highway location for I-205.

Prior to this meeting, the Port had given us the coordinates of the end of the proposed new runway. We have therefore arrived at the horizontal and vertical alignments for the proposed location of I-205 east of the airport and across the Columbia River to connect with the established corridor in the state of Washington.

The Port advised that they would go to a public hearing on March 12 and that they would like us to deliver to them, at least one week prior to this hearing, maps showing our proposed alignment (both vertical and horizontal) and a schematic drawing of the proposed structure. They would also like us to show on the plan map the right-of-way limits that we would require. They were advised that we would prepare such maps and deliver them for the Port's use at the hearing.

They also asked that we study the interchange patterns that would: (a) serve the airport facility; and (b) Marine Drive. Their present idea is that Marine Drive will be relocated south of the airport and would intersect I-205 approximately halfway between the River and Sandy Boulevard. This is something that they will have to work out with the County before it can be firmed up since this is a County facility. We advised them that it did not appear feasible to interchange both Marine Drive and the airport because of the short distance between them. We will, however, study the matter and see what is a feasible plan for this development. In connection with this, they left us a hand-colored map showing the proposed airport expansion facility.

Also left with us was a written analysis of the traffic loads that can be expected in future years as the result of the airport expansion. These data apparently show that there will be a DHV in the year 2000 of approximately 6,600 desiring to move between the freeway and the airport. We will use these data and information of our own that we may have in developing the interchange patterns necessary to serve the airport and the surrounding country.

The question of the future Fremont Freeway was brought up by the Port and they were advised by Mr. Cooper that the Fremont Freeway was not on any State Highway System and that no one knows whether it will ever be constructed or not.

The Port inquired whether or not the Columbia Boulevard freeway was a State project. They were advised that it is not a State project and that they should confer with the County about it.

The Port also advised us that they had had conversations with the Game Commission and it appeared that they would be able to acquire all of Government Island from them. If so, they would satisfy the boat owners by constructing a small boat basin in the remnant of Government Island not needed for the runway or highway facility. They further stated that hydraulics experts had advised them that there were no hydraulic problems connected with the proposed filling of Columbia River to accommodate the new airport. Apparently, they will have to lower the boat channel about 10 feet to keep the velocities of the Columbia River at about the same range as those which now exist.

The second item on the agenda was a discussion of the development of the Rivergate industrial area. The Port left with us a comprehensive volume developed by consulting engineers showing the various stages that this development would pass through. One of the important features of the overall plan is the development of a Tualatin Freeway. This freeway would begin at the Sunset Highway and then pass through the Tualatin Mountains to the north and cross the Willamette River downstream from the St. Johns Bridge. It would continue through the proposed Rivergate area and then cross the Columbia River west of Vancouver. The Port asked us to study the proposal and pick a tentative alignment for it from the Sunset Highway to the Willamette River. The alignment between the Willamette River and the Columbia River has been selected by the Port. They would, however, like us to define a right-of-way through the Rivergate industrial area so that they can set it aside when laying out the property for the industrial development. They were advised that we would do this work and submit a report to them in the near future. It is my estimate that this will take at least one month to accomplish.

ORIGINAL SIGNED BY
E. B. KLABOE

F. B. Klaboe
Assistant State Highway Engineer

FBK:srb

cc: Forrest Cooper
R. L. Porter
Tom Edwards
F. D. Morgan
I. D. Merchant
H. S. Cox
A. E. Johnson

NOTE: Mr. Edwards: Please supply the schematic drawings for the proposed structure across the Columbia River.
Mr. Morgan: Please make the studies for both the airport and Rivergate facilities. Also prepare the vertical and horizontal alignment maps to be used at the Port's upcoming hearings. All information needed for the hearings should be delivered to my office prior to February 29.

FBK

NOTED
TOM EDWARDS

8905

STATE OF WASHINGTON
DANIEL J. EVANS, GOVERNOR

COMMISSIONERS
GEORGE D. ZAHN, CHAIRMAN
METHOW
ROBERT L. MIKALSON
CENTRALIA
HAROLD WALSH
EVERETT
BAKER FERGUSON
WALLA WALLA
JOHN N. RUPP
SEATTLE
LORENZ GOETZ, SECRETARY
OLYMPIA

WASHINGTON
STATE HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS
C. G. PRAHL, DIRECTOR
HIGHWAYS-LICENSES BUILDING
OLYMPIA

DISTRICT OFFICES
NO. 1 SEATTLE 98108
6431 SO. CORSON AVE.
NO. 2 WENATCHEE 98801
P. O. BOX 98
NO. 3 OLYMPIA 98501
P. O. BOX 327
NO. 4 VANCOUVER 98663
4200 MAIN STREET
NO. 5 YAKIMA 98901
P. O. BOX 52
NO. 6 SPOKANE 99205
N. 2714 MAYFAIR ST.
NO. 7 SEATTLE 98109
500 FAIRVIEW AVE. NO.

FEB 6 - 1968
FOR FILING

Hoyer no action

February 2, 1968

Mr. Matthew E. Thompson
116 Evergreen Drive
Vancouver, Washington 98661

FAI 205 - Columbia River Interstate Bridge

COPY

Dear Mr. Thompson:

Your recent letter to Mrs. Julia Butler Hansen, Member of Congress, suggesting the need for maximum attention to the aesthetics of the proposed crossing of the Columbia River on Interstate 205 has been referred to this office.

Although the proposed bridge crosses the state line between Oregon and Washington, by agreement the State of Oregon has taken on the responsibility of designing this important structure. In order to somewhat balance out the work load on our common river crossings, we tend toward alternating our responsibility in this manner. I am therefore taking the liberty of forwarding your letter to Mr. Forrest Cooper, State Highway Engineer of Oregon. I would hasten to add, however, that the State of Oregon has already exemplified itself in their design of beautiful structures, and I am sure that with or without a special agent established to insure maximum attention to aesthetics, they would give this item due consideration in any event. I believe they would also be forced to admit that economics of design and construction are one of the factors that have to be considered and that the most expensive structure is not necessarily the most aesthetically acceptable.

Very truly yours,

C. H. ANDREWS, P.E.
Deputy Director of Highways

CHA:ro
cc: Julia Butler Hansen, M.C.
Forrest Cooper w/attach.

NOTED
FORREST COOPER

RECEIVED
FEB - 5 1968
OFFICE OF
STATE HIGHWAY ENGINEER

116 Evergreen Drive
Vancouver, Washington 98661

Congresswoman Julia Butler Hansen
U.S. House of Representatives
Washington, D.C.

Dear Congresswoman Hansen:

I am writing in regard to the design of the proposed bridge across the Columbia River on Interstate Highway I-205.

Here is a great opportunity for a really beautiful and important bridge which would be a landmark in the area and an event on the route of tourists and travelers in our area even as the Golden Gate Bridge which has an enormous intangible value to the Bay Area which came about because some people cared a great deal about its design.

The Federal Government's position on highway beautification is firmly on record and over 90% of the money is coming from the Federal Government. These two facts would seem to insure that the bridge would be the most imaginative, beautiful, and appropriate possible. I hope so, but, I'd like to be more sure. I'd like to see directives from the Secretary of Transportation or higher to the Oregon and Washington highway departments to the effect that this bridge should be a high example of the administrations beautification intentions and I'd like to see an adviser or an advisory group appointed at the state level to assist in seeing that these intentions are carried out for this project. I'd like to see the highway department responsive to the administrations intentions and the wishes of people in this area who want an outstanding bridge and I'd like to see an outstanding bridge result, one that we can be proud of, known outside the area, familiar to travelers and symbolic of our area.

It may cost more, it may cost less than what the highway department would design unwatched and unencouraged, I don't know. But in any event they tell me it's going to cost over 20 million dollars. The opportunity is tremendous. I hope we don't spend all that money on a second rate bridge.

Any efforts you can put forth in this cause could result in a beautiful bridge known and appreciated by millions and millions of people in and beyond our area and for many many years into the future.

Respectfully,

Matthew R. Thompson
Matthew R. Thompson

8105

RECEIVED

COMMISSIONERS
GLENN L. JACKSON, CHAIRMAN
MEDFORD
DAVID B. SIMPSON, MEMBER
PORTLAND
FRED W. HILL, MEMBER
HELIX

FLOYD QUERY, SECRETARY
SALEM

FORREST COOPER
STATE HIGHWAY ENGINEER
R. L. PORTER
DEPUTY STATE HWY. ENGR.
G. E. ROHDE
CHIEF COUNSEL

OREGON STATE HIGHWAY COMMISSION
OFFICE OF GLENN L. JACKSON
% PACIFIC POWER AND LIGHT CO.
MEDFORD, OREGON 97501

8

February 1, 1968

Board of County Commissioners
of Clark County, Washington
Room 208, Clark County Court House
Vancouver, Washington 98660

Gentlemen:

This is in answer to your letter of January 29 relative to the possible effect of the plans under consideration by the Port of Portland on the location of I-205.

The Oregon State Highway Commission has no intention of asking for a change in terminal location of the bridge across the Columbia River on the Washington side. While it is true that certain realignments will occur on the Oregon side, we have assured the Washington Highway Commission that the previously accepted location of the northern end of the bridge will not be disturbed.

NOTED
F. B. KLABOE

The other matters contained in your letter are under the jurisdiction of the Port of Portland and I would suggest communicating direct with Mr. George Baldwin, manager of the Port of Portland.

Best regards.

Sincerely yours,

Glenn L. Jackson
Chairman

GLJ:ejr

cc: Mr. Cooper

NOTED
FORREST COOPER

RECEIVED
FEB - 2 1968
OFFICE OF
STATE HIGHWAY ENGINEER

RLP copy

COUNTY OF CLARK - STATE OF WASHINGTON
**BOARD OF COUNTY COMMISSIONERS**
ROOM 208, CLARK COUNTY COURT HOUSE
PHONE 694-1581 - EXTENSION 221
VANCOUVER, WASHINGTON 98660

NOTED
R. L PORTER

January 29, 1968

Mr. Glenn Jackson, Chairman
Oregon State Highway Commission
Salem, Oregon

Dear Mr. Jackson:

It has come to our attention that the Port of Portland has plans for expansion of the Portland International Airport. Since these plans are still in the idea stage, no concrete proposals have been forthcoming. It appears, however, that the diversion of the Columbia River and subsequent shift in the location of the northerly runway may necessitate establishment of a new alignment for Interstate route 205. Because of this possibility, the Board of Clark County Commissioners would like to acquaint you with the problems which we would face should such an expansion require a shift in the freeway routing in Clark County.

1. Property owners have postponed development of land near the freeway route for several years due to the uncertainty of the precise alignment. Prior to the Port of Portland announcement it was anticipated that route access hearings would be held this spring. These access hearings would fix the exact freeway location so that development of these areas can proceed.

2. A number of decisions by the Clark County Planning Commission have deferred development activity in the proposed freeway corridor. These decisions were made in the belief that the boundaries of the freeway acquisition would shortly be determined. Should a delay occur, it will prove to be extremely difficult for the Clark County Planning Commission to maintain its position of preserving the proposed freeway right of way.

3. It is our understanding from discussions with Mr. Bulley of the Washington State Highway Department that a considerable investment has been made in engineering studies for the current alignment. Clark County has also spent many thousands of dollars in laying out a road system designed to properly serve the proposed freeway. Should the alignment be shifted, much of this investment would be wasted at considerable expense to the tax payers.

1-31-68
Original to Jackson with Note:
It would appear that this should be directed
to the Port of Portland rather than the
State Highway Commission.

F.C.

4. Because of the fact that no firm plans are available concerning this major alteration to the Portland International Airport, it is difficult to comment on the proposal. Several observations have been noted, however which we might briefly mention. A northerly shift in the runway would place the landing pattern directly over the City of Vancouver. This would constitute a hazard as well as creating a conflict with the Shillapoo Lake Jet Cargo Airport proposed in the Vancouver Lake Complex Study which was recently completed. We are enclosing a copy of the summary of this study for your information.

5. Another consideration in the possible realignment of the runway is its impact on recreation in the Portland-Vancouver area. Since the area proposed for filling currently has heavy use for recreation, this step should not be lightly undertaken. The growing importance of recreation makes it mandatory for full weight to be given to this step should it prove to be hydrologically feasible.

In summary may we again express the concern felt in Clark County regarding the possible shift in the alignment of Interstate route 205 in Clark County. Should such a shift be required, the result would be higher right of way costs and increased public expenditure through additional engineering costs, and much disruption to the affected property owners and the general public. From a public relations standpoint, further delay in the freeway program can only be considered harmful.

Thank you for the opportunity to express our concern about this very important transportation link between Oregon and Washington.

Yours very truly,

BOARD OF COUNTY COMMISSIONERS
OF CLARK COUNTY, WASHINGTON

Jim Worthington
Chairman

Lawrence Beauchamp

Enclosure

cc: William Bulley, District Engineer
Washington State Highway Department

8105.

RECEIVED
JAN 17 1968
FORM E-30 50M 10-65
FOR FILING

J

## OREGON STATE HIGHWAY DEPARTMENT

INTER-DEPARTMENT CORRESPONDENCE

Salem, Oregon
January 15, 1968

SUBJECT:

To: Memo to File

On this date, Messrs. Baldwin, Beaman, and Arnold of the Port of Portland called at the office and discussed with Forrest Cooper, Tom Edwards, and R. L. Porter the tentative timetable (attached) for the proposed north runway fill at the Portland Airport. They stated the location of the easterly end of the proposed runway is as described at the last joint meeting and that the Port will furnish fill to an elevation of 35± and right-of-way upon which to relocate I-205.

There was some discussion relative to the State's current application for a navigational permit copy in and Mr. Edwards is to check with the Coast Guard about an amendment.

Port of Portland

The rest of the meeting was devoted to explanation and discussion of the various items on the attached schedule. The State will check with the Bureau of Public Roads to determine if Federal-aid Interstate funds could participate in any cost of the fill which will support the Interstate route.

R. L. Porter

R. L. Porter
Deputy State Highway Engineer

Att.
RLP:ms
cc Forrest Cooper
    Tom Edwards
    F. B. Klaboe
    Victor D. Wolfe

Copy to Young
Morgan
1-18-68

BU
[illegible]
Revise Memo

Copy sent to A. E. Johnson
ado 1/19/68 -

Jan. 15, 1968

Port Baldwin
Seamon
Arnold

OSHD Cooper
Edwards
Porter

## TENTATIVE TIME TABLE FOR NORTH RUNWAY FILL

**1968**

| | |
|---|---|
| January 1 | Begin Engineering for permit |
| March 12 | Hold Public Hearing |
| March 15 | Permit application to Corps of Engineers |
| June 1 | Permit Approval |
| August 1 | Complete engineering - advertise for dredging |
| October 1 | Open bids |

**1969**

| | |
|---|---|
| January 1 | Begin dredging - first contract to run for 24 month - 20,000,000 cubic yards. 8,000,000 cubic yards maximum in place by crest of flood |
| April 1 | Advertise two contracts of 8,000,000 and 4,000,000 cubic yards |
| June 1 | Award contracts 2 and 3 |
| August 1 | Complete closure under contract #1<br>Commence dredging contracts #2 and #3 |
| November 1 | Fill for I-205 complete |

**1970**

| | |
|---|---|
| May 1 | Complete contracts 2 and 3 |
| December 30 | Complete contract #1 |

OB/la
1/12/68

Port will furnish fill at east end of Runway = [illegible],
Fill to be 35±-

705,115
1,476,010 El. 60±

8905

File copy

RECEIVED
JAN 16 1968
FOR FILING

STANDARD INSURANCE COMPANY
*Home Office:* PORTLAND, OREGON

COPY

January 9, 1968

NOTED
R. L. PORTER

Mr. George Baldwin
General Manager
Port of Portland
710 S. W. 2nd
Portland, Oregon

Dear Mr. Baldwin:

I read with interest of your proposal to enlarge the Portland Airport as set forth in the January 5th edition of the Oregonian. The purpose of my letter is to suggest that you might receive some opposition from Vancouver residents.

I live on the north bank of the Columbia. I "hanger" an airplane at Vancouver Pearson Air Park. Both of these interests would be compromised by your proposed plan. In the case of the residence, the airport would be substantially closer to my dwelling and it's logically anticipated that the noise factor would be objectionable.

Relative to the interest in Vancouver Pearson Airport, I theorize that an extention of the center line from the Portland Airport would overlie the pattern of Pearson Air Park, thereby, making it's continued operation impractical.

I'm sure that you recognize this would be opposed by the city of Vancouver and perhaps by the FAA, who has a responsibility to promote general aviation in its entirety, not just commercial aviation.

Since property values are involved, I would urge you to assess the magnitude of these values on the north side of the river as well as those downtown Vancouver properties that would be affected. I am confident that if you do you will look for additional alternatives, such as extending runways at 10 R and 10 L further east. I would suspect that the condemnation value of the land lying east of 10 R when coupled with the cost of land

copy Jackson
1-12-68

fill necessary to extend 10 L would still be less than the proposed cost as outlined in the current proposal, plus the cost of litigation and settlements.

My thanks for your consideration.

Sincerely,

Frank M. Burger, CLU

FMB:er

cc: Mr. Glen L. Jackson ✓
Chairman
State Highway Commission
Salem, Oregon

8705

H 8

RECEIVED
JAN 4 - 1968

FOR FILE...

January 4, 1968

Oregon State Highway Commission

Gentlemen:

I am attaching a copy of a letter from Charles G. Prahl, Director of Highways of the State of Washington, on the subject of Interstate 205 at its crossing of the Columbia River.

My interpretation of Mr. Prahl's letter is to the effect that as far as the State of Washington is concerned it will have none of the proposal to change the route northerly of the Columbia River.

Very truly yours,

Forrest Cooper
State Highway Engineer

FC:fm

Attach.

cc R. L. Porter
Tom Edwards
F. B. Klaboe
Victor D. Wolfe
L. W. Rulien

STATE OF WASHINGTON
DANIEL J. EVANS, GOVERNOR

COMMISSIONERS
GEORGE D. ZAHN, CHAIRMAN
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WALLA WALLA
JOHN N. RUPP
SEATTLE
LORENZ GOETZ, SECRETARY
OLYMPIA

WASHINGTON
STATE HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS
C. G. PRAHL, DIRECTOR
HIGHWAYS-LICENSES BUILDING
OLYMPIA

DISTRICT OFFICES
NO. 1 SEATTLE 98108
6431 SO. CORSON AVE.
NO. 2 WENATCHEE 98801
P. O. BOX 98
NO. 3 OLYMPIA 98501
P. O. BOX 327
NO. 4 VANCOUVER 98663
4200 MAIN STREET
NO. 5 YAKIMA 98901
P. O. BOX 52
NO. 6 SPOKANE 99205
N. 2714 MAYFAIR ST.
NO. 7 SEATTLE 98109
509 FAIRVIEW AVE. NO.

January 2, 1968

X copy to file 2-6-68

Mr. Forrest Cooper
State Highway Engineer
State Highway Building
Salem, Oregon 97310

Dear Mr. Cooper:

The tentative plan for new runway facilities proposed by the Port of Portland for the Portland International Airport which were forwarded by your December 6, 1967 letter, has been given detailed consideration.

At the present stage of our project development in Washington, such a proposal causes serious concern in view of all the alternate route studies and considerations that went into establishment of a route corridor which previously included adjustment of the route to accommodate the best possible safety features and operations for present and future travel at the airport.

A hearing on the route of I-205 in Washington has been held and preliminary design work is essentially complete at this time. Concurrence of various government agencies and approval of alignment and grade as required by Washington statutes has been accomplished. As a result of this approval, the affected planning commissions in the City of Vancouver and Clark County have ceased issuing building permits within the approved route corridor. This coordination with the various agencies involved has been based on our having final right of way plans by spring, or early summer at the latest. As you are aware, the route has been moved easterly to accommodate airport requirements and we do feel that it would be possible to accept the route location around the end of the runway as it would reach the north shore at the same place. However, it is considered imperative that the route location at the north shore be retained despite any possible adjustment to the south.

RECEIVED
JAN 3 - 1968
OFFICE OF
STATE HIGHWAY ENGINEER

NOTED
FORREST COOPER

Copy to: [illegible]
Commission
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]

I am certain that you can recognize the effects that any change would have at this time. As the plans presented by the Port of Portland are tentative and appear quite speculative, we would definitely not be in a free position to reconsider the route location within the State of Washington considering the present stage of our project development and public reliance on the previous route determinations.

Sincerely,

C. G. PRAHL, P.E.
Director of Highways

CGP:bg
cc: Andrews
Bulley

December 15, 1967

Mr. George H. Baldwin, General Manager
The Port of Portland
Post Office Box 3529
Portland, Oregon 97208

Dear Mr. Baldwin:

I have sent rough details of the proposal of the new runway facilities for the Portland International Airport in connection with the I-205 crossing of the Columbia River to Charles G. Prahl, Director of the Washington Department of Highways, for his review and comment.

While his Department has not had time to study or evaluate the proposal, I feel that he is not sure in his own mind that this is a serious proposal which should merit full consideration by the State of Washington. I can well understand his attitude, as he has been to some extent a "third party" to this matter. He is placed in somewhat of an embarrassing position by the fact the Washington Highway Commission has spent substantial sums of money on plans that would need to be altered.

I write this letter in accordance with my policy of keeping you fully informed and to suggest that you communicate with Mr. Prahl in your own way to give him a clearer image of this entire matter.

Very truly yours,

Forrest Cooper
State Highway Engineer

bcc: C. G. Prahl
R. L. Porter
Tom Edwards
F. B. Klaboe
Victor D. Wolfe
FC:fn jes

STATE OF WASHINGTON
DANIEL J. EVANS, GOVERNOR

COMMISSIONERS
GEORGE D. ZAHN, CHAIRMAN
METHOW
ROBERT L. MIKALSON
CENTRALIA
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WALLA WALLA
JOHN N. RUPP
SEATTLE
LORENZ GOETZ, SECRETARY
OLYMPIA

1889

**WASHINGTON**
**STATE HIGHWAY COMMISSION**
**DEPARTMENT OF HIGHWAYS**
C. G. PRAHL, DIRECTOR
HIGHWAYS-LICENSES BUILDING
OLYMPIA

DISTRICT OFFICES
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N. 2714 MAYFAIR ST.
NO. 7 SEATTLE 98109
509 FAIRVIEW AVE. NO.

December 11, 1967

Mr. Forrest Cooper
State Highway Engineer
State Highway Building
Salem, Oregon 97310

Route

Dear Mr. Cooper:

Thank you for your letter of December 6, 1967 forwarding me a copy of the latest proposal of the Port of Portland for new runway facilities for the Portland International Airport which we discussed by telephone a few days ago.

We will analyze this proposal in detail and submit more definitive comments to you just as soon as practical. In reviewing the marked-up map sent with your letter, it still appears to me that the Port of Portland has initiated studies for this expansion of the Portland International Airport at a very late date. As you know, we have spent considerable engineering funds in developing detailed plans for Interstate 205 north of the Columbia River on the basis of relatively firm commitments. At this point, it appears that the Port of Portland plans are extremely tentative in nature and may or may not be approved by appropriate authorities. Perhaps the question I am asking is this: Are these definite, well-considered plans or are they merely exercises which were generated as a result of trying to tie down the location of Interstate 205?

You will hear from us further when we have had an opportunity to study in more detail the effects of this proposal by the Port of Portland on our plans for Interstate 205 north of the Columbia River.

Sincerely,

C. G. PRAHL, P.E.
Director of Highways

RECEIVED
DEC 12 1967
OFFICE OF
STATE HIGHWAY ENGINEER

CGP:eg
cc: G. H. Andrews
W. A. Bulley

copy FC

RECEIVED
DEC 15 1967

Const
RIH
EPZ

December 6, 1967

Mr. C. G. Prahl, Director
Washington Department of Highways
Highways-Licenses Building
Olympia, Washington 98501

Dear Chuck:

I am transmitting to you a copy of the latest proposal of the Port of Portland re its tentative plans for a new runway facility for the Portland International Airport.

If this proposal is adopted, it would substantially change the situation with respect to the crossing of the Columbia River and would appear to warrant investigation of a changed route in the state of Washington. I have indicated one possible suggestion in pencil on the enclosed map. This line could, of course, be adjusted and possibly would need to be.

X
copy to Dec 2-6-68

I hand this matter to you for your consideration, analysis, and comments. I will be glad to discuss it with you at any time or give you any additional information that I can get from the Port of Portland.

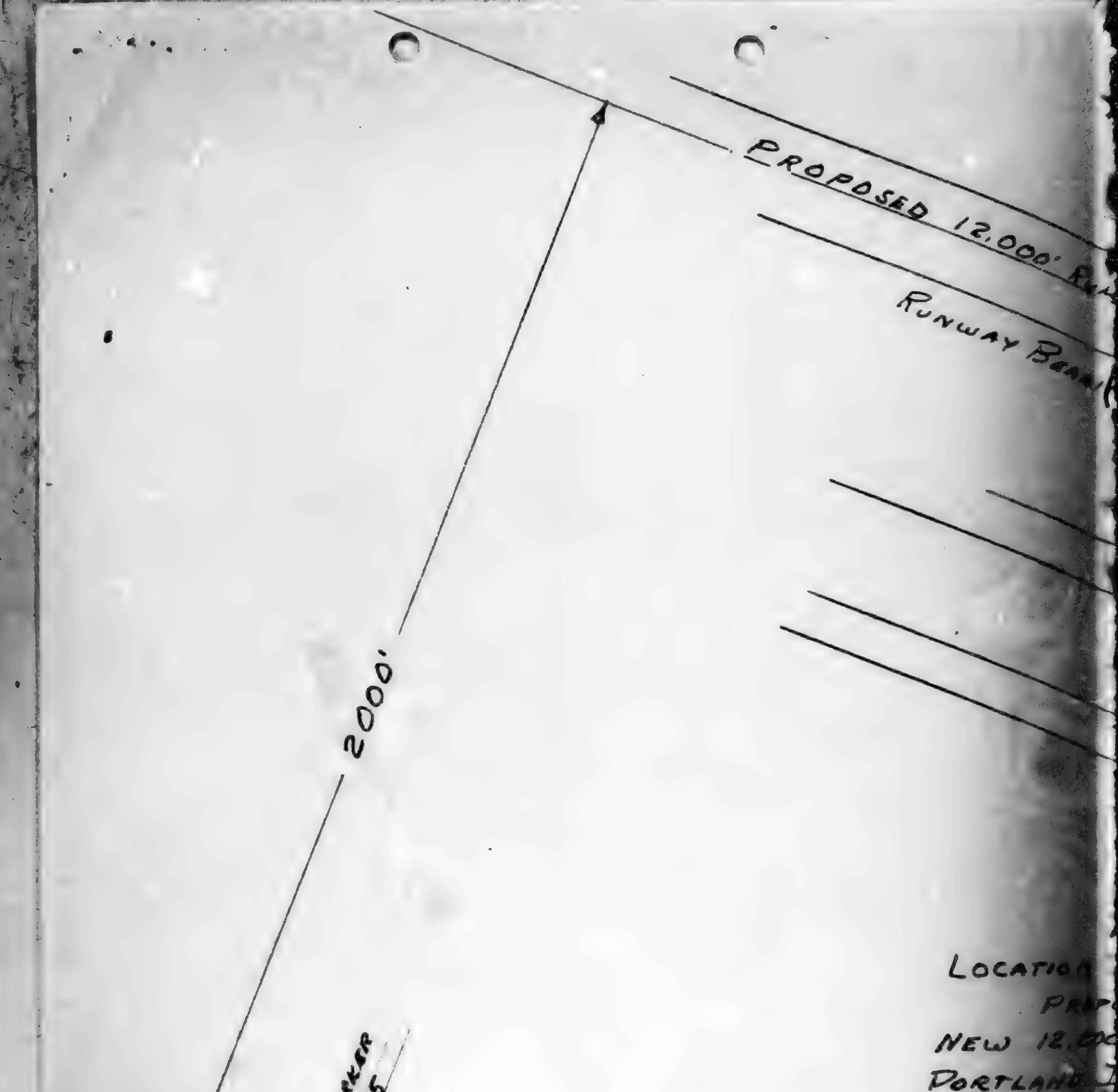
Kindest regards,

Forrest Cooper
State Highway Engineer

FC:fn

Enc.

cc R. L. Porter
F. B. Klaboe
Victor D. Wolfe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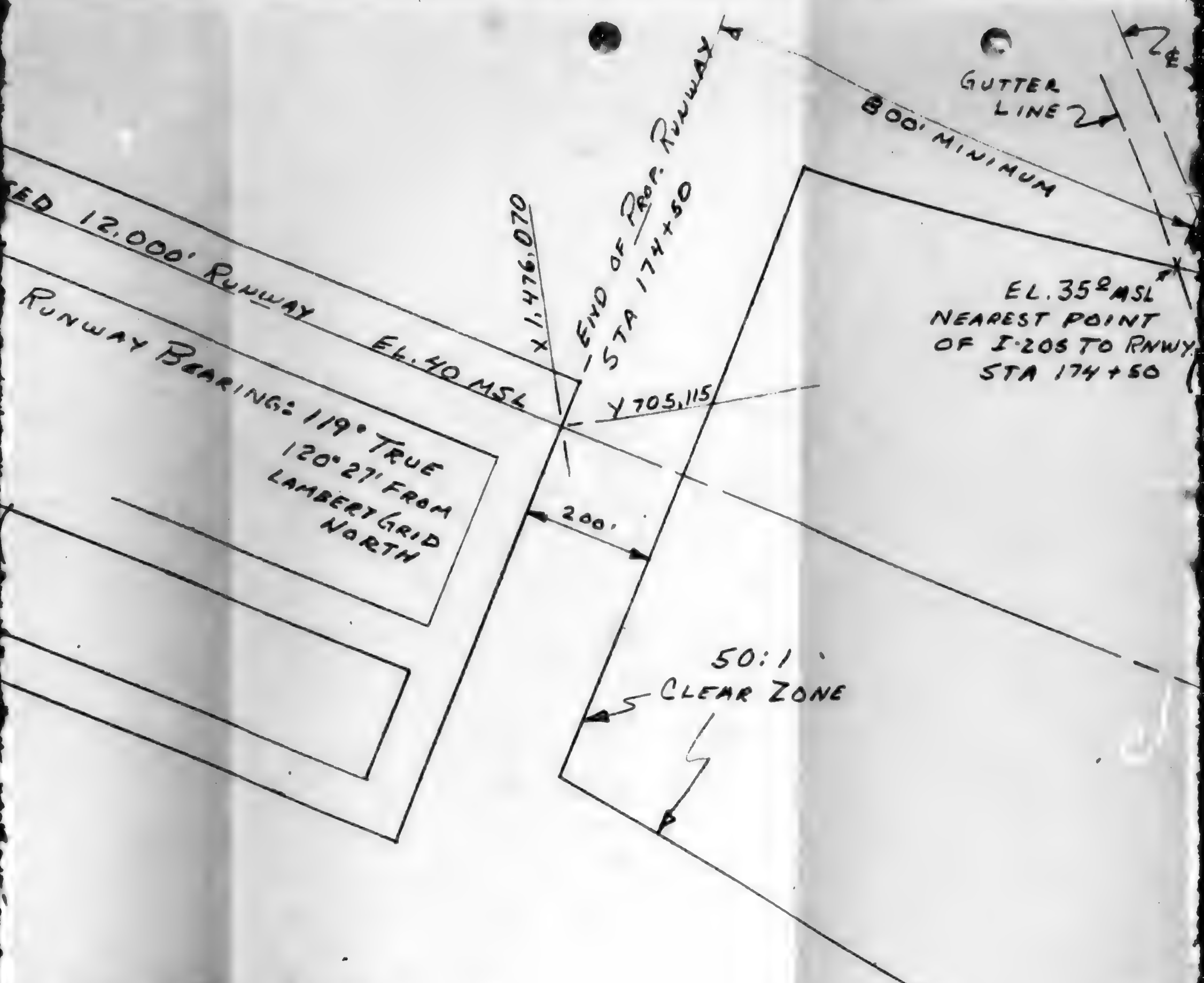
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RUNWAY BEARING: 119° TRUE
120° 27' FROM
LAMBERT GRID
NORTH
EL. 40 MSL
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END OF PROP. RUNWAY
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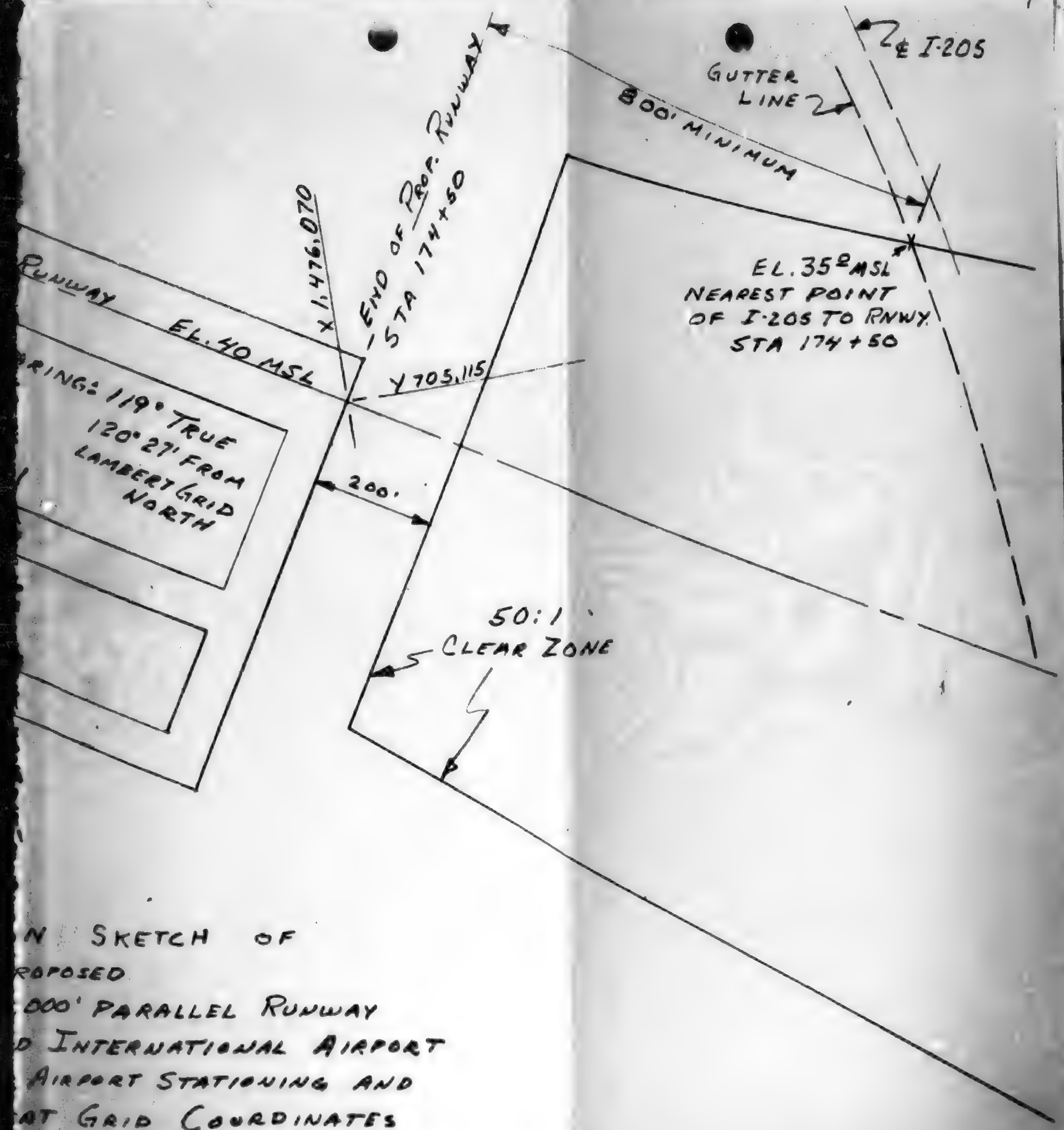
CLEAR ZONE
800' MINIMUM
GUTTER LINE
℄
EL. 35º MSL
NEAREST POINT
OF I-205 TO RNWY.
STA 174+50

LOCATION SKETCH OF
PROPOSED
NEW 12,000' PARALLEL RUNWAY
PORTLAND INTERNATIONAL AIRPORT
SHOWING AIRPORT STATIONING AND
LAMBERT GRID COORDINATES
PER OSHD PRELIM. I-205 PLAN
DATED NOV. 22, 1967 SCALE 1" = 200'
GRQ 12-7-67

BR


℄ I-205
GUTTER LINE
800' MINIMUM
END OF PROP. RUNWAY
STA 174+50
X 1,476,070
RUNWAY
EL. 40 MSL
Y 705,115
RING: 119° TRUE
120° 27' FROM
LAMBERT GRID
NORTH
200'
EL. 35$^{2}$ MSL
NEAREST POINT
OF I-205 TO RNWY.
STA 174+50
50:1
CLEAR ZONE

N SKETCH OF
ROPOSED
,000' PARALLEL RUNWAY
D INTERNATIONAL AIRPORT
AIRPORT STATIONING AND
AT GRID COORDINATES
SHD PRELIM. I-205 PLAN
NOV. 22, 1967 SCALE 1"=200'
GRR 12-7-67

8905

8

RECEIVED
JAN 24 1968

# OREGON STATE HIGHWAY DEPARTMENT

INTER-DEPARTMENT CORRESPONDENCE

December 26, 1967
Salem, Oregon

**SUBJECT:** Port of Portland

**To:**

MEMO TO THE FILES

On December 21 Larry Jacobson and I met with Ogden Beeman and Adam Heineman of the Port of Portland.

The Port of Portland has recently found what is thought to be the solution to the expansion of the Portland International Airport. The Port purposes to relocate the river channel which now separates Government Island from the south shore of the Columbia by dredging a large channel through Government Island, filling the old channel with the spoils and thereby expanding the usable ground to the north. They had two questions to ask us regarding this project:

1. Government Island is owned by the Game Commission; the Commission is willing to wheel and deal if "someone" will replace Government Island with Deer Island (downriver from St. Helens). Would the State consider the development of a state park on Deer Island as a means of appeasing Columbia County interests. I said that it was possible, but the project would have to stand on its own merits subject to our usual criteria.

2. With the relocation of the Government Island channel, there would be recreation opportunities for boating and other recreation facilities. Would the State be in a position to undertake, or assist Multnomah County in the undertaking of such improvements? I stated that the Government Island question was a policy issue to be determined by the Highway Commission. I explained some of the legal problems involved in assisting counties as well as the federal and state-federal aid programs available for such projects.

Mr. Beeman asked if the State would have any interest in the proposed park at the mouth of the Willamette which is a part of the Rivergate Industrial project. I explained the Willamette River Parks System and indicated that, should the State become actively involved in the program (acquire and develop parks on the river) this site would have to be considered in relation to any other potential sites along the entire river.

Memo to the Files
Page 2
December 26, 1967

We made it clear to the Port officials that in complex projects with wide dimensions, such as the airport expansion and the Rivergate projects, requests for policy statements and positions should be directed to Mr. Cooper or the Highway Commission.

David G. Talbot
State Parks Superintendent

DGT:jbk

cc: L. P. Shaw ✓
    L. V. Koons
    R. I. McCosh
    R. L. Wilder
    L. B. Jacobson
    Darrell Jones

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NOV 30 1967
FOR FILING

STATE OF WASHINGTON
DANIEL J. EVANS, GOVERNOR

WASHINGTON
STATE HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS

OFFICE OF DISTRICT ENGINEER
4200 MAIN STREET
VANCOUVER, WASHINGTON

November 22, 1967

C
O
P
Y

Mr. George M. Baldwin, Manager
Port of Portland
5848 N. Lagoon Avenue
Portland, Oregon 97217

C.S. 0607 FAI 205
Port of Portland Meeting
November 20, 1967

Dear Mr. Baldwin:

I appreciated the opportunity to attend last Monday's meeting at which time you presented a very preliminary plan for filling the south channel to provide for construction of a new north runway as part of the expanded development of Portland International Airport. It appeared that the proposed plan would require the relocation of I-205 approximately 1200 to 1500 feet easterly of its latest revised location.

Although we cannot yet determine the effect which the alignment change may have on the design and construction of the I-205 facility in the State of Washington, I would like to point out to you the following items which I mentioned at the meeting:

1. As a result of the change in alignment proposed by the Oregon Highway Department at the public hearing held on May 25, 1967, the State of Washington modified a previous alignment to extend a tangent alignment across the river northerly for a considerable distance north of the proposed interstate bridge. This change was made to eliminate the need for undesirable curves and involved the complete redesign of the interchange with SR 830 and caused considerable delay in our plan preparation. Any modification of the present alignment of I-205 would affect the design of the 830 interchange unless it were possible to maintain the required curvature of alignment within the limits of the bridge. Any modification of the grades would very likely affect the design

copy - Merchant
11-29-67

NOTED
TOM EDWARDS

NOTED
R. L. PORTER

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NOV 21 1967
OFFICE OF
STATE HIGHWAY ENGINEER

of the interchange to a lesser extent.

2. We are presently in the process of preparing our access report and right of way plans, and we plan to conduct the public access hearing early in the spring of 1968. The acquisition of right of way will follow immediately after the access hearing. Modification of the interchange at this time will most certainly affect the right of way plans and cause delays in our schedule. Changes could also result in additional costs to the State of Washington by reason of additional costs to the consultant to accomplish the modifications. In addition, it is possible that construction costs could increase if it is necessary to provide a curved alignment of the facility. Any increase in cost would be difficult to estimate at this time. We would of course also be very concerned over any delay in accomplishing our scheduled construction of this facility.

As mentioned to you at the meeting, we will keep in close contact with the Oregon Highway Department, and we will review in more detail the effects of the proposed plan on the FAI 205 facility in the State of Washington as soon as pertinent detailed information is available to us.

Very truly yours,

W. A. BULLEY, P.E.
District Engineer

WAB:bar
cc: Mr. Forrest Cooper
Mr. C. O. Prahl
Mr. O. H. Andrews

DEC 1 - 1967

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EPT

Mr. Cooper

NOTED
FORREST COOPER

THE PORT OF PORTLAND
LINDSAY BUILDING
PORTLAND, OREGON

# MINUTES
# PORTLAND INTERNATIONAL AIRPORT EXPANSION MEETING
# WITH
# STATE AND FEDERAL AGENCIES
# ON
# MONDAY, NOVEMBER 20, 1967

State and Federal agency and Port of Portland representatives met in the Port board room in the Lindsay Building, 710 S. W. Second Avenue, Portland, Oregon, on November 20, 1967 for the purpose of discussing the northerly expansion of Portland International Airport. The attached attendance roster indicates those individuals present at the meeting and the agency each represents.

Mr. Baldwin opened the meeting by reviewing growth of aviation, projections for future growth and requirements, and the planning efforts to date of the Port with respect to aviation development.

Mr. Heineman described the present limitations of the airport and the need for expansion, as well as previous Port efforts towards solving the airport problem.

Mr. Heineman then described the Port's proposal to expand PIA to the north by filling along the south bank of the Columbia River. The filled material will be obtained by dredging from the main river channel adjacent to PIA, and from a new South Channel which will be cut diagonally across the lower end of Government Island. A new 12,000' long runway would then be constructed along the north edge of the fill some 2,000' north of the existing north parallel runway at an elevation of 40' above msl. The I-205 freeway would be rerouted slightly east and be constructed on the new fill at an elevation of 35' above msl just off the end of the new runway. The bridge would then rise from the north edge of the runway clear zone to cross the main channel of the Columbia River at the required vertical clearance.

Problem areas for which solutions must be obtained were described by Mr. Heineman as including the bridge clearance and the bridge ramp slopes; recreational requirements; Game Commission land; and the overall effect on the river channel. Beneficial side effects of this project include the creation of a large marina basin between existing Marine Drive and the new channel across Government Island; shorter bridge length and possibly lowered bridge costs; and an apparent improvement in the overall channel maintenance problems in this reach of the river.

Mr. Baldwin pointed out the vital need for expansion of aviation facilities, preferably at the existing site since there is now an investment of some $20 million here. Although the Port is continuing its review of probable costs for expansion vs. development at a new major airport site, the plan for expanding the existing airport to the north appears to have substantial economic advantages over the development of a new site.

Because of the overwhelming importance of access to the airport by the airport users, Mr. Neset reviewed the comparative accessibility of PIA and the several other sites currently being reviewed. Based on 1965 census and telephone company figures projected to 1980, PIA is considered to be 14% more accessible to the general public than its nearest competitor at the present time and will still be 12% more accessible in 1980. The area considered in this review of accessibility includes Washington as far north as Longview, and Oregon as far south as Eugene.

Mr. Bartel, of the Corps of Engineers, anticipated no insurmountable problems but expressed the need to make more detailed review of the entire proposal.

Admiral Helmer, of the U. S. Coast Guard, was assured that maximum flood flow capacity of the river had been considered.

With respect to relocation of the military facilities, Mr. Cooper, of the Oregon State Highway Department, was advised that the Port would have to relocate the military at Port expense and that total development to the south would result in a cost some 40 to 60 percent higher than that anticipated for expansion and development to the north.

Mr. Hext indicated that although complete meteorological data is not available, it is believed that PIA experiences less fog incidence than other sites being considered by possibly 30%. In this regard it was pointed out that a recent determination by FAA had raised the minimum instrument flight conditions at Portland to an intolerable degree and that irrespective of the proposed expansion plan, this condition would have to be corrected at the earliest possible date at a preliminarily estimated cost of some $3 million.

With respect to timing of the project, the group was advised that because a decision regarding this project will directly affect the expansion and development of PIA, a decision is necessary at the earliest possible date. It is estimated that the hydraulic fill could be completed over a two-season period, and the group was advised that funds are available within the Port to proceed immediately. This schedule appeared to fit in with the probable bridge completion, estimated at three years from beginning of design.

In an effort to preclude the need to reroute I-205 to the east, inquiry was made as to whether the runways could be convergent or whether the proposed runway could be moved downstream without adversely affecting the airport capacity. It was pointed out that convergent runways precluded simultaneous instrument operations and that moving the runway downstream would probably constrict the main river channel to an unacceptable degree.

With respect to bridge clearance over the main river channel, Mr. Cooper strongly urged that the clearance requirement be reduced to approximately 135' in order to reduce the approach ramp grade, reduce costs, and increase traffic safety on the structure. It was assumed that a public hearing would be necessary if there is a change in the bridge clearance over the main river channel and it was estimated that at least six months time would be required to accomplish these hearings. It was the consensus that if the river clearance can be established satisfactorily, the other details can be resolved without great difficulty. Mr. Bulley, of the Washington State Highway Department, was assured that all planning had been based on the assumption that the Washington end of the bridge is fixed in location and alignment.

The group was advised that the Oregon State Game Commission feels the proposal is sufficiently important to warrant serious study and their permission has been given to the Port to drill test holes on Government Island.

Recreational problems are felt to be one of the greater problem areas primarily because of the wide divergence of interests. The boating interests will be directly affected and the Port plans to proceed immediately in discussing the plans with Larry Barber, member of the State Marine Board.

Mr. Chandler, of CRAG, expressed the feeling that the PIA site is undoubtedly best from the overall benefit standpoint, and that such expansion should preferably be to the north since expansion to the south would create serious noise problems.

With respect to FAA requirements, Mr. McCall's opinion is that the approaches are acceptable under the proposed plan but that possible conflicts will have to be resolved relative to instrumentation of the west end of the proposed runway and taxi procedures for aircraft taking off to the east. Although interference by maritime commerce on the river is not currently anticipated, the possibility cannot be overlooked and planning must be done accordingly.

The opinion was stated that previous consideration relative to bridge height was based only on a possibility of future river traffic and that a more realistic comparison of value to affected facilities, namely, highway, airport, and the river must be made.

Mr. Baldwin summarized the results of the meeting by establishing Port responsibility for the following items:

1. Prepare and submit a recommendation regarding the necessary bridge height as soon as possible.

2. Review FAA requirements and move the runway as far west as possible, still maintaining the integrity of the future airport.

3. Proceed immediately with contact of upriver agencies as well as the maritime and recreational interests who will be affected by this project.

4. Keep other agencies fully advised regarding developments in this project.

There being no other items of discussion, the meeting was adjourned.

ERA:mc
Attachment
11/27/67

# ATTENDANCE AT
# AIRPORT EXPANSION MEETING
## NOVEMBER 20, 1967

### OREGON STATE GAME COMMISSION

P. W. Schneider
A. V. Meyers
Clark Walsh

### OREGON STATE HIGHWAY DEPARTMENT

Forrest Cooper
R. L. Porter
Fred Klaboe

### FEDERAL HIGHWAY ADMINISTRATION

Baird French
Hugh Henry
Al Parsons
Ted Dee

### CORPS OF ENGINEERS

Fred Bartel
Dean Harshberger

### WASHINGTON STATE HIGHWAY DEPARTMENT

W. A. Bulley
Tom Gray

### CRAG

Homer Chandler
Ken Hampton

### U. S. COAST GUARD

Admiral Helmer
Cmdr. Rubin E. Young

### FEDERAL AVIATION AGENCY

Robert Blanchard
Bill McCall

### THE PORT OF PORTLAND

George M. Baldwin
A. J. Heineman
Ogden Beeman
W. S. Dirker
R. F. Dow
George D. Hext
W. G. Proctor
A. K. Amundson
E. R. Arnold
Harry M. Hanna
David Neset

8905

FORM E-30 10M 10-65

9555

# OREGON STATE HIGHWAY DEPARTMENT

INTER-DEPARTMENT CORRESPONDENCE

Salem, Oregon
November 8, 1967

SUBJECT:

To:

MEMO TO THE FILE

L

Commander Olson, Chief of the Bridge Branch, Aids to Navigation Division, Coast Guard Headquarters, 1300 "E" Street, N. W., Washington, D.C., 20591, called this date concerning the permit for the I-205 bridge across the Columbia River. He has under discussion the Port of Portland plan and asked for a two-week delay in rendering a decision thereon. I told him the following things:

?

1. The State could not consider any plan which required construction at a surface elevation below approximately 38.0 feet.

2. That we would require a covered section, since the operation of jets over the highway in such close proximity to the port under an open, uncovered condition could not be acceptable.

3. That we probably would require a lowering over the main channel to 135-foot clearance.

4. We were making a rough assessment of the economics involved.

5. That we were currently not in favor of the plan. ?

6. We would keep him advised of our position.

ORIGINAL SIGNED
TOM EDWARDS

TE:ja

Tom Edwards
Assistant State Highway Engineer

cc Forrest Cooper
R. L. Porter
F. B. Klaboe
Victor D. Wolfe
Ivan Merchant

P.S. Commander Olson's telephone number is: Area Code 202, WO4-5350.

RECEIVED
OREGON STATE HIGHWAY DEPT.
BRIDGE DIVISION
[illegible] 1967
AM PM
7,8,9,10,11,12,1,2,3,4,5,6

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OCT 30 1967

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FORM E-30 50M 10-65
FOR FILING

NOTED
R. L. PORTER

**OREGON STATE HIGHWAY DEPARTMENT**

INTER-DEPARTMENT CORRESPONDENCE

Salem, Oregon
Oct. 12, 1967

SUBJECT: Port of Portland

To: Mr. R. L. Porter
Deputy State Highway Engineer

Building

You have requested our opinion as to whether or not under ORS 778.085 it is necessary for the Oregon State Highway Commission to obtain a permit from the Port of Portland, prior to constructing the I-205 bridge over the Columbia River.

After a full review of not only ORS 778.085, the remaining statutes governing the Port of Portland, as well as ORS 381.005 to 381.080 which govern the construction by the Highway Department of bridges over the Columbia River to the State of Washington, it is our opinion that no permit is needed from the Port of Portland.

ORS 381.010, which is one of the statutes authorizing the Highway Commission to construct bridges over the Columbia River, provides that the Commission in the name of the state "may make and enter into agreements" with various individuals and governmental agencies. These include the United States, the State of Washington, counties, ports, and any persons or associations, whether in the State of Oregon or in the State of Washington.

The statutes contemplate cooperation between the various agencies of the state, as well as the State of Washington, prior to construction of such a bridge.

The Highway Commission does, therefore, have the authority, where agreements are required, to enter into such agreements. We are unable, however, to find any provision in either the statutes or Oregon court decisions which require the Commission, prior to constructing such an interstate bridge, to obtain any permits from the Port of Portland or any other port.

Frank
FRANK C. McKINNEY
Assistant Counsel

FCMcK:ks
cc: Forrest Cooper
Tom Edwards
Ivan Merchant
G. E. Rohde

Hand-delivered

RECEIVED
OCT 12 1967
OFFICE OF
STATE HIGHWAY ENGINEER

by McKinney
copy Klaboe

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OCT 10 1967
FOR FI[illegible]

8905

October 9, 1967

Mr. A. W. Parsons, DivisionEngineer
Bureau of Public Roads
477 Cottage Street, N. E.
Salem, Oregon 97301

Dear Mr. Parsons:

Your File: 08-35.3/727

This is in reference to your October 4 inquiry concerning a 2500-foot extension of Runway 10L/28R at the Portland International Airport.

The location that this Department now proposes and the one that was submitted to the Corps of Engineers for river navigational clearances was adjusted far enough easterly to permit such an extension. Apparently, at the December 8, 1966, meeting this was the main concern of the Port of Portland although their opinion was so garbled that it was very difficult for me to understand. At any rate, the new proposed location for I-205 will permit a 2500-foot extension of this runway.

Very truly yours,

Forrest Cooper
State Highway Engineer

By

R. L. Porter
Deputy State Highway Engineer

RLP:mm
cc Forrest Cooper
Tom Edwards
F. B. Klaboe
Victor D. Wolfe

UNITED STATES GOVERNMENT

# *Memorandum*

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
BUREAU OF PUBLIC ROADS
477 Cottage Street NE.
Salem, Oregon 97301

DATE: October 4, 1967

In reply refer to: 08-35.3/727

TO : Mr. Forrest Cooper, State Highway Engineer
Salem, Oregon

A. W. Parsons

FROM : A. W. Parsons, Division Engineer
Salem, Oregon

SUBJECT: Airport - Highway Clearance
Portland International Airport

Enclosed is a copy of the Federal Aviation Administration's September 22, 1967 letter to All Concerned, in which they refer to a proposed extension of Runway 10L/28R at the Portland International Airport. Although they indicate a previous notice on this proposal was issued July 11, 1967, the enclosed letter is the first mention of this proposal to come to our attention from the Federal Aviation Administration.

We were somewhat surprised to hear of this proposal in view of the testimony given at the December 8, 1966 informal hearing on a proposed route location for I-205. At that time it appeared that many were concerned that the highway might be built too close to the end of this same runway at its present position. An extension of this runway 2500 feet in an easterly direction would appear to severely compound this problem.

Has your Department been aware of the Port of Portland's intention to extend this runway, and if so, what has been their plan to avoid or correct the conflict that appears to be imminent here? We would appreciate hearing your comments on this matter.

Enclosure
FAA ltr, 9-22-67

RECE
OCT 6 1967
OFFICE OF
STATE HIGHWAY ENGINEER

BUY U.S. SAVINGS BONDS REGULARLY ON THE PAYROLL SAVINGS PLAN

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
SEATTLE AREA OFFICE
FAA BUILDING, BOEING FIELD
SEATTLE, WASHINGTON 98108

September 22, 1967

IN REPLY REFER TO: 67-SEA-42-NRF

TO ALL CONCERNED:

In a letter "TO ALL CONCERNED" dated July 11, 1967, the Federal Aviation Administration advised of the proposed extension of Runway 10L/28R and associated taxiways at the Portland International Airport 1500 feet in a westerly direction (10L) and 2500 feet in an easterly direction (28R). This would result in a total runway length of 12,000 feet.

As a result of this circularization, an objection was received from the City of Vancouver, Washington. The City of Vancouver contended that any lengthening of the runway to the west would cause potential traffic confliction with aircraft operations at Pearson Airpark, Vancouver, Washington. They suggested that any expansion planned at the Portland Airport be done in an easterly direction.

On September 6, 1967, there appeared in the Federal Register an amendment to Part 93 of the Federal Aviation Regulations which establishes a special air traffic rule for the Portland, Oregon International Airport traffic area to become effective October 6, 1967.

In view of the issuance of the Portland Special Air Traffic Rule, it has been determined that, effective October 6, 1967, the action proposed in case 67-SEA-42-NRF is acceptable and should not result in an adverse effect on the safe and efficient use of airspace by aircraft.

Leland P. Hughey

Leland P. Hughey
Acting Area Manager

8905

8 P

RECEIVED
OCT 3 - 1967
FOR FILING

October 2, 1967

Mr. R. P. Rittenhouse, Director
State Marine Board
109 Agriculture Building
Salem, Oregon 97310

Re: Columbia River Bridge
Interstate 205

Your File: 309

Dear Mr. Rittenhouse:

In reply to your letter of September 5 regarding the provisions for an auxiliary small-boat channel to be located near the south side of Government Island, we have not as yet received a ruling from the Department of Transportation which would permit exact calculations.

Span lengths, in our estimation, will be in the 200-foot range. This will not provide a clear channel of 200-foot width in the area outlined in your letter, since the thread of the proposed channel will be crossed at a rather sharp angle.

We estimate that the low point of the bottom of beams in the area to which you refer to be about elevation 59, or 11 feet above that of the main small-boat channel. Using the high water elevations of 20.48 and 22.98 for the five- and ten-year flood averages, respectively, this channel will provide a maximum vertical clearance of 38.5 feet and 36 feet; however, until the sandspit is dredged to provide a channel, the maximum depth of water at high water would only be in the neighborhood of eight to ten feet, making the use of this channel available only during the time of floods.

We have not as yet engaged a consultant to design this structure. I cannot, therefore, advise you as to pier locations, beam depths, and span lengths with any degree of accuracy at this time. We will give consideration to the points you raised at the proper time.

Very truly yours,

Forrest Cooper
State Highway Engineer

By

Tom Edwards
Assistant State Highway Engineer

bc Forrest Cooper
R. L. Porter
F. B. Klaboe
Lloyd P. Shaw
Victor D. Wolfe
Ivan Merchant

TCR:mb;smd/TE:ja

06029

SEP 11 67

STATE OF OREGON
STATE MARINE BOARD
OFFICE OF THE DIRECTOR
SALEM 97310

cc Klaboe
Edwards

Sept. 5, 1967

Mr. Forrest Cooper
State Highway Engineer
Highway Building

File 309

Dear Mr. Cooper:

Referring to your letter of June 29th, regarding the Columbia River Bridge on I-205, in which you indicated your Bridge people would evaluate a suggestion by our agency that the bridge plans include a span near the south side of Government Island; this area to be considered a small-boat channel to be used when the vertical clearance of the main small-boat channel was restricted due to high water.

We further recommended the piers be spaced so that a channel could be dredged in the future. Our recommendation that this span be planned for a channel 200 feet in width could be modified.

Attached are copies of our prior correspondence for your ready reference.

Would you advise me as to your Department's decision on this?

Yours very truly,

R. F. Rittenhouse

R. F. Rittenhouse
Director

RFR:mm

encl.

Porter

Handed to Mr. Shaw

RECEIVED
SEP 5 1967
OFFICE OF
STATE HIGHWAY ENGINEER

STATE OF OREGON
STATE MARINE BOARD
OFFICE OF THE DIRECTOR
SALEM 97310

June 26, 1967

Mr. Forrest Cooper
State Highway Engineer
Highway Building

File 216

Dear Mr. Cooper:

This letter is in regard to the Portland District, Corps of Engineers' Public Notice 67-22 (S4 Revised) Columbia River Bridge. At this time our agency would like to submit the following recommendations for your consideration.

As you know, at the public hearing conducted in Portland by the Army Engineers on May 25th, regarding the proposed bridge across the Columbia River between Portland and Vancouver, Washington, on proposed Highway I-205, considerable opposition was expressed by navigational interests, the local yacht clubs and others, regarding the vertical clearance over the small-boat channel. Our agency expressed concern over the fact that this would restrict future development of marinas, commercial traffic and recreational boating.

Accordingly, we would like to make the following recommendations which, we believe, are feasible and, in most part, will solve the conflict regarding vertical clearance.

Briefly, this plan calls for the bridge design to include a span near the south side of Government Island which would be considered a small-boat channel to be used when the vertical clearance of the main small-boat channel was restricted due to high water.

This recommendation is based upon our understanding that your present plans call for commencing an increase in the bridge elevation immediately outside the Portland Airport Runway "clear zone" in order to reach the required vertical clearance over the main ship channel. Consequently, when the bridge approaches the South side of Government Island the elevation or vertical clearance will be approximately 60 feet.

It is recommended that bridge piers be so spaced and a span planned for a potential channel in that particular area. This secondary channel, which would run along the South shore of

NOTED
FORREST COOPER

RECEIVED
JUN 27 1967
OFFICE OF
STATE HIGHWAY ENGINEER

Government Island, should be planned for a minumum of 200 feet in width with the Northern side of the channel being approximately 100 feet from the Southern shore of Government Island at low water .

At the present time there is a sandspit at this particular location; however, it is quite possible that at highwater when the vertical clearance of the regular small-craft channel would restrict the passage of certain vessels, there would be enough water over this spit to allow passage under the bridge at that point.

It may eventually develop that there would be a need for dredging and maintaining a channel in the area proposed herein. This is the reason for our recommendation that the Northerly edge of the proposed channel be approximately 100 feet from the shore to eliminate sluffing.

In addition to this recommendation we would also recommend that the horizontal clearance of the small-craft channel be increased to a minimum of 200 feet. As log rafts are towed in this channel and rafts have a tendency to swing, this somewhat restricted clearance will cause problems. We further recommend that the vertical clearance be no less than 48 feet.

We note that some of the bridge piers will be located in the only "Special Anchorage Area" in Oregon which was authorized by the Secretary of the Army.

We would be pleased to discuss these recommendations in more detail at your convenience.

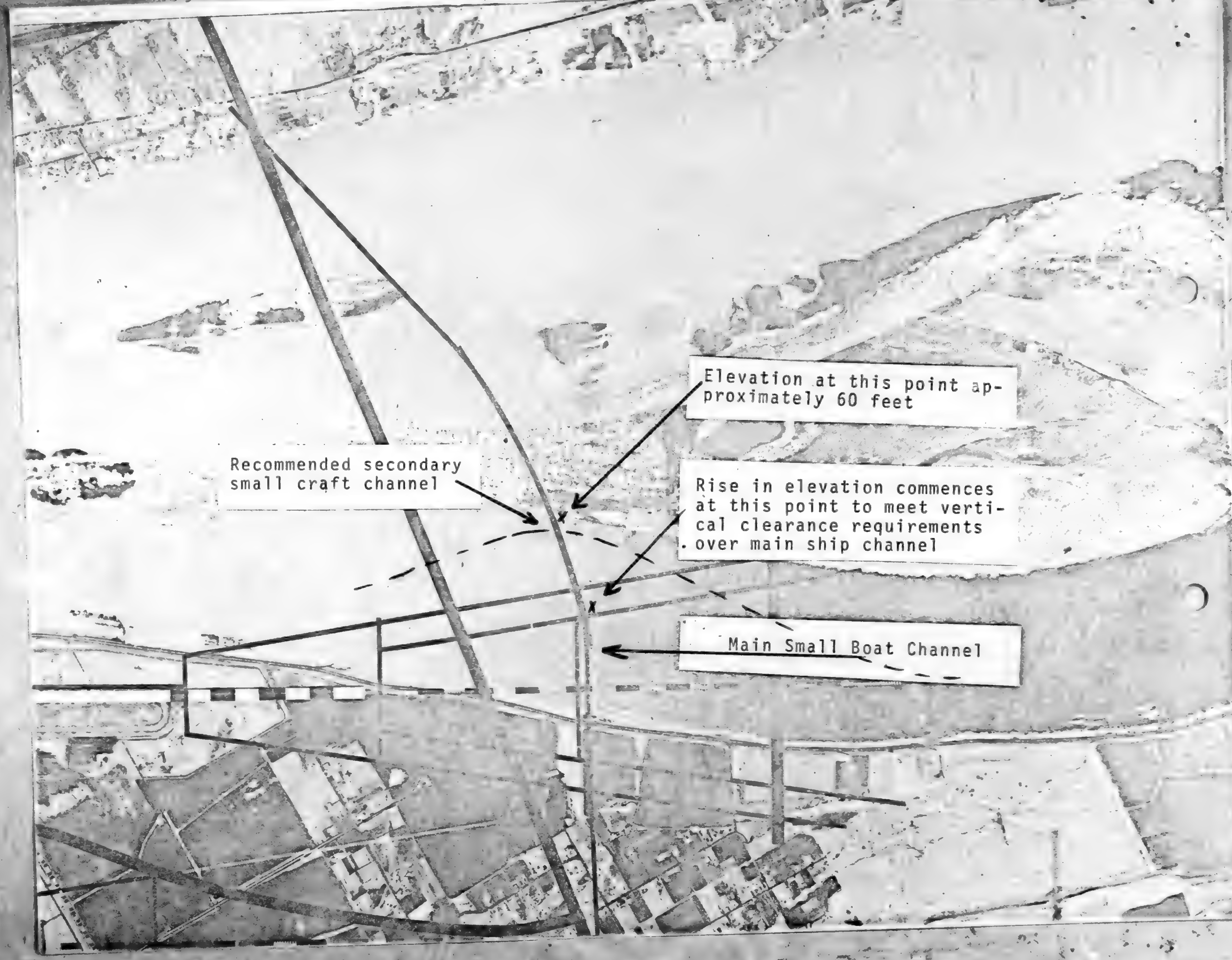
Yours very truly,

R. F. Rittenhouse

RFR:mm

R. F. Rittenhouse
Director

cc - Governor McCall
Port of Portland


Elevation at this point approximately 60 feet
Recommended secondary small craft channel
Rise in elevation commences at this point to meet vertical clearance requirements over main ship channel
Main Small Boat Channel

8905

FORM E-123X 50M 4-62

COMMISSIONERS
GLENN L. JACKSON, CHAIRMAN
MEDFORD
KENNETH N. FRIDLEY, MEMBER
WASCO
DAVID B. SIMPSON, MEMBER
PORTLAND

STATE OF OREGON
STATE HIGHWAY DEPARTMENT
SALEM 97310

RECEIVED
SEP 8 - 1967
FOR FILING

September 7, 1967

Subj: Columbia River Bridge
East Portland Freeway (I-205)
Multnomah County

Mr. R. F. Dow
Chief Engineer
The Port of Portland
P. O. Box 3529
Portland, Oregon 97208

Dear Mr. Dow:

As requested, I am sending by messenger two copies each of the current plan and profile for the proposed Columbia River Bridge on Interstate 205.

The plan has been revised slightly from that previously submitted to fit a minor move easterly on the Washington state line. This would not have a noticeable effect on the line in the vicinity of the flight path or the south channel. The profile has been revised from the 40-foot clearance over the south channel to the 48-foot clearance as presently submitted to the Corps of Engineers. As noted on the profile, any changes which might be necessitated by final design will be controlled by the minimum acceptable clearance outlined in the penultimate paragraph of the Port of Portland May 17, 1967 letter to Commissioner Jackson on this subject.

If you have any questions please contact me.

Very truly yours,

Forrest Cooper
State Highway Engineer

By ADOlson
A.D. Olson
Urban Engineer

RECEIVED
SEP 7 1967
OFFICE OF
STATE HIGHWAY ENGINEER

ADO:jr
Enclosures

cc: F.B. Klaboe
A.E. Johnson

8405

xJ

RECEIVED
AUG 1967

FOR FILING

August 1, 1967

Mr. Rupert Kennedy
Executive Director
Mid-Columbia Planning Council
Post Office Box 893
The Dalles, Oregon 97058

"Library
Plan for development of the Oregon mid-Columbia R. waterfront".

Dear Mr. Kennedy:

This is in reply to your letter of July 28. The determination of horizontal and vertical clearances for the I-205 crossing of the Columbia River easterly of the Portland International Airport will be made by the U. S. Coast guard, probably acting in concert with the U. S. Corps of Engineers, rather than by the State Highway Department.

For many years, such determinations were a function of the Corps of Engineers but, under recent federal legislation, jurisdiction is being transferred to the Coast Guard.

Thank you for the data re deep draft navigation in the Columbia River.

Very truly yours,

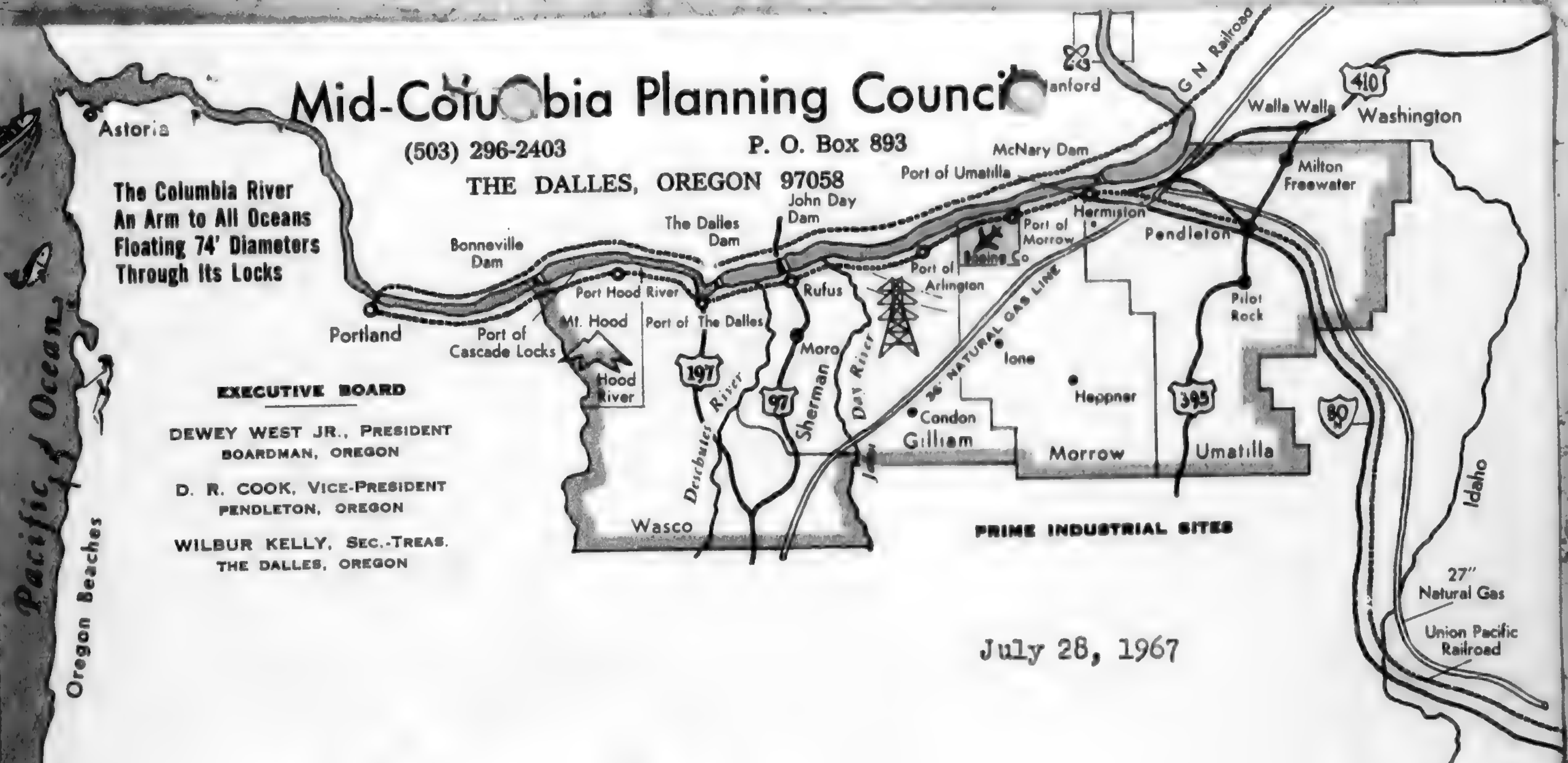
Forrest Cooper
State Highway Engineer

FC:fm

copy to Marchal
8-3-67

cc R. L. Porter
Tom Edwards
F. B. Klaboe
Victor D. Wolfe
A. E. Johnson
L. W. Rulien

Mid-Columbia Planning Council
(503) 296-2403
P. O. Box 893
THE DALLES, OREGON 97058


The Columbia River
An Arm to All Oceans
Floating 74' Diameters
Through Its Locks
Astoria
Pacific Ocean
Oregon Beaches
Portland
Bonneville Dam
Port of Cascade Locks
Port Hood River
Mt. Hood
Hood River
Port of The Dalles
The Dalles Dam
John Day Dam
Rufus
Moro
Port of Arlington
Port of Morrow
Port of Umatilla
McNary Dam
Hanford
G N Railroad
Walla Walla
Washington
410
Milton Freewater
Hermiston
Pendleton
Pilot Rock
197
97
395
80N
Deschutes River
Sherman
John Day River
30" Natural Gas Line
Ione
Heppner
Condon
Gilliam
Morrow
Umatilla
Wasco
Prime Industrial Sites
Idaho
27" Natural Gas
Union Pacific Railroad

EXECUTIVE BOARD

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PENDLETON, OREGON

WILBUR KELLY, SEC.-TREAS.
THE DALLES, OREGON

July 28, 1967

Mr. Forrest Cooper, Engineer
State Highway Department
Highway Building
Salem, Oregon

Dear Mr. Cooper:

Would you please advise us of your final determination of the clearances provided for adequate and economical deep draft navigation under the north channel of the I-205 Interstate Bridge?

Sincerely,

Rupert Kennedy

Rupert Kennedy
Executive Director

RK:pr

P.S. We are attaching our channel and lock promotion for your information.

RECEIVED
JUL 31 1967
OFFICE OF
STATE HIGHWAY ENGINEER

Mid-Columbia Planning Council
(503) 296-2403 P. O. Box 893
THE DALLES, OREGON 97058

The Columbia River
An Arm to All Oceans
Floating 74' Diameters
Through Its Locks

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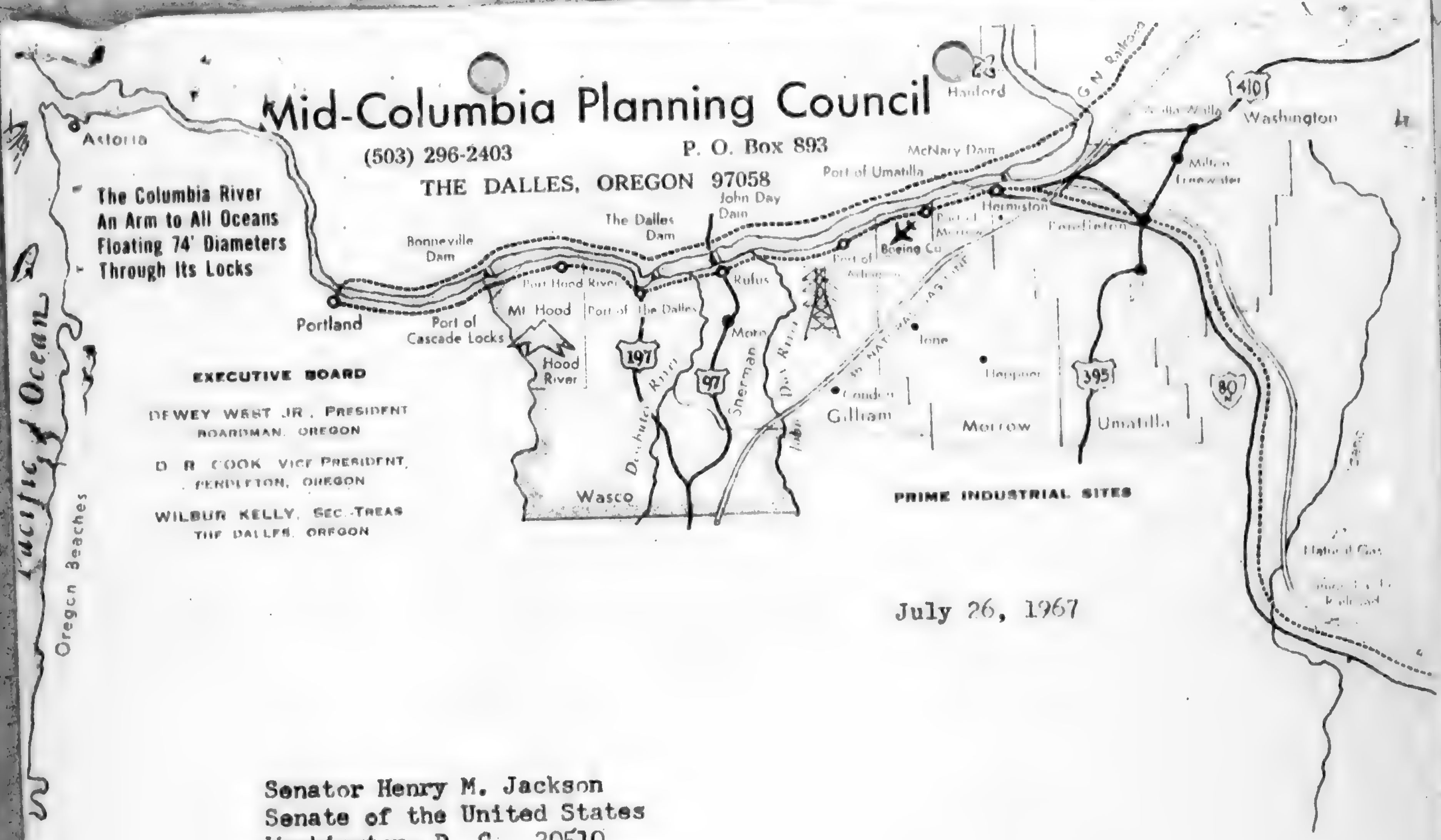
THE DALLES, OREGON


Astoria
Pacific Ocean
Oregon Beaches
Portland
Bonneville Dam
Port of Cascade Locks
Port Hood River
Mt. Hood
Hood River
Port of The Dalles
The Dalles Dam
John Day Dam
Rufus
197
97
Deschutes River
Moro
Sherman
John Day River
Wasco
Condon
Gilliam
Ione
Heppner
Morrow
Port of Arlington
Boeing Co.
Port of Morrow
Port of Umatilla
McNary Dam
Hermiston
Pendleton
Milton Freewater
Walla Walla
Hanford
G. N. Railroad
Washington
410
395
80N
Umatilla
Natural Gas
PRIME INDUSTRIAL SITES

July 26, 1967

Senator Henry M. Jackson
Senate of the United States
Washington, D. C. 20510

Dear Senator Jackson:

We find that your Senate resolution adopted April 17, 1967, for the study of Bonneville lock does not include channel studies and therefore would not consider the full utilization of the assets of the great power producing river and the addition of 10,000 acres of prime waterfront sites to deep draft status, much needed in our industrial and commercial expansion program and jobs for our greatly expanded birth of young people in the Northwest.

Would you please consider an amendment to your resolution including the channel above and below Bonneville Dam?

Sincerely,

Rupert Kennedy
Executive Director

RK:pr

Letters: Senator Warren G. Magnuson
" Mark O. Hatfield
" Wayne Morse

90th Congress
1st Session

**United States Senate**
COMMITTEE ON PUBLIC WORKS

## COMMITTEE RESOLUTION

RESOLVED BY THE COMMITTEE ON PUBLIC WORKS OF THE UNITED STATES SENATE, That the Board of Engineers for Rivers and Harbors, created under Section 3 of the River and Harbor Act approved June 13, 1902, be, and is hereby requested to review the report of the Chief of Engineers on the Columbia River at Bonneville, Oregon, published as Senate Committee Print, Seventy-third Congress, second session, and other pertinent reports, with a view to determining whether any modifications of the recommendations contained therein are advisable at this time, with particular reference to determining the adequacy of the existing navigation Channel & [illegible] lock ~~at~~ below Bonneville Dam, and the advisability of its enlargement or augmentation by construction of an additional or duplicate lock, in order to meet the needs of present and anticipated commerce.

Amend 7

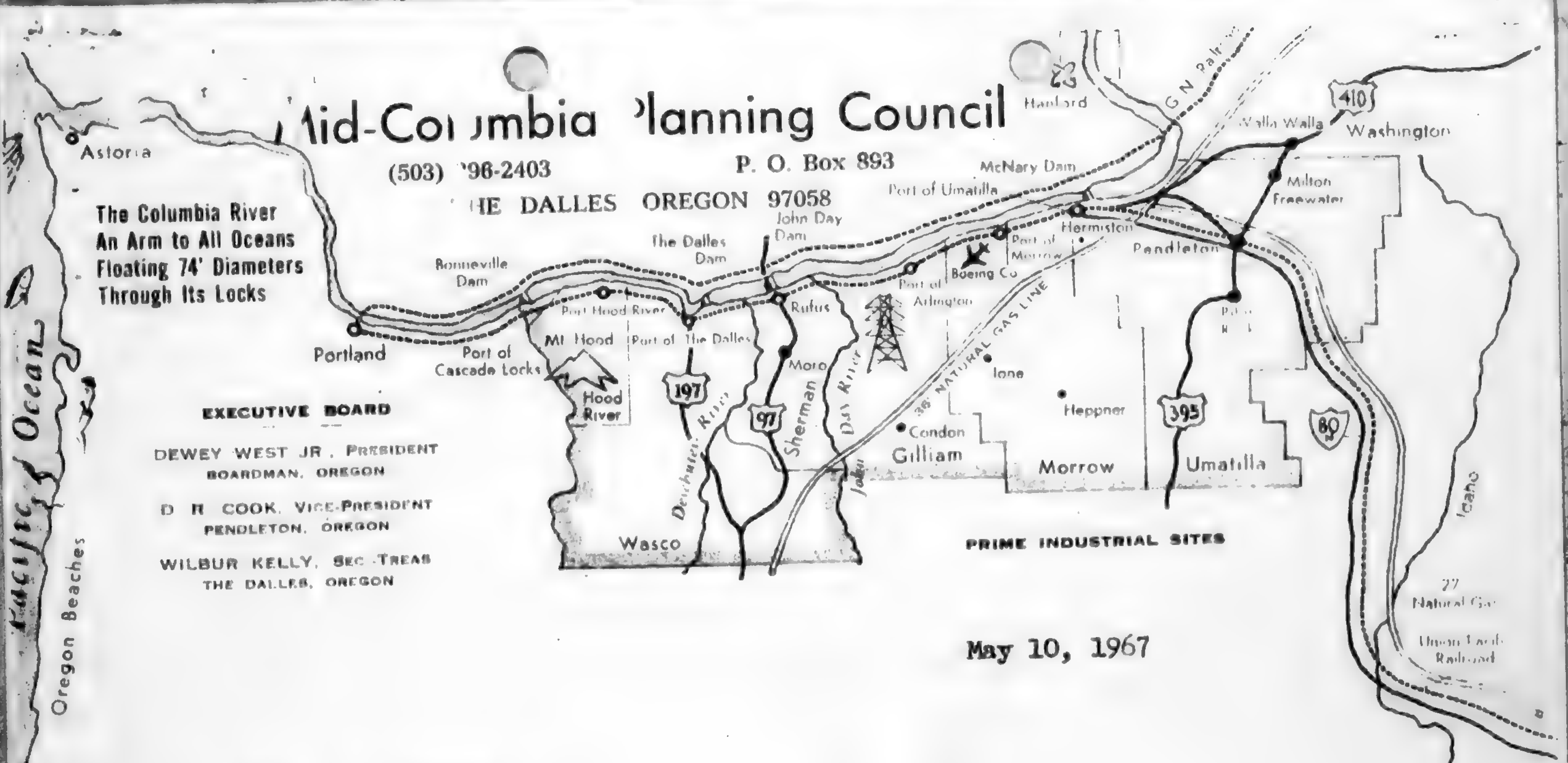
Adopted: April 11, 1967

JENNINGS RANDOLPH, Chairman.

(At the request of Senators Magnuson and Jackson of Washington and Senators Morse and Hatfield of Oregon)

Mid-Columbia Planning Council
(503) [illegible]96-2403
P. O. Box 893
THE DALLES OREGON 97058

**The Columbia River
An Arm to All Oceans
Floating 74' Diameters
Through Its Locks**


Astoria
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Moro
197
97
Deschutes River
Sherman
John Day River
Wasco
36 Natural Gas Line
Port of Arlington
Boeing Co
Port of Morrow
Condon
Gilliam
Ione
Heppner
Morrow
Hermiston
Port of Umatilla
McNary Dam
Hanford
G N Railway
Walla Walla
410
Washington
Milton Freewater
Pendleton
395
Umatilla
80
Idaho
27 Natural Gas
Union Pacific Railroad
PRIME INDUSTRIAL SITES

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PENDLETON, OREGON

WILBUR KELLY, SEC.-TREAS
THE DALLES, OREGON

May 10, 1967

Senator Henry M. Jackson
Senate of the United States
Washington, D. C. 20510

Dear Senator Jackson:

The purpose of this History of Navigational Development of the Upper Columbia, Vancouver to The Dalles, for deep draft vessels is to inform people of the 30-year efforts to establish the project and make it economically useful.

The Corps of Engineers have received their first appropriation to re-plan Bonneville Dam in conjunction with the use and leveling abilities of Canadian and American storage water available in 1970.

The present Bonneville lock is the first and smallest in the entire river, (500x76x24) as compared to all upriver locks being (675x86x15). It has hard gooseneck approaches on both ends and must be replaced and made economically useful and adequate at the earliest possible date. (Ref. pages 89-91, Mid-Columbia Waterfront Study 1966 - attached )

Preliminary plans call for raising the Bonneville Pool to create a higher head of water for more power with all year Canadian water (74 feet to 82 feet), will greatly enhance navigation for 45 miles from Bonneville to The Dalles.

Lower Columbia and Puget Sound waterfront commercial and industrial sites are in very short supply. (Ref. attached data block.)

The Mid-Columbia River area has 9000 acres of prime waterfront sites in Oregon and Washington with Bus-bar BPA power available and adequate economic deep draft navigation must be extended to these job sites. Navigation is at its best once you enter the Federal dam pools.

All of the Mid-Columbia port sites are served by trans-continental freeways and railroads that can carry, both ways, great quantities of raw and processed materials between the heart of the nation and foreign countries.

We note that much smaller rivers in our country are receiving tremendous project funds for navigational development and ports on the coast equal development with no feeder railroads and highways and no apparent long-lasting raw material at hand. We don't begrudge these developments, but we think that our project, long awaited, on a great river, with many assets, deserves serious consideration.

The Canadian storage water use and nuclear plants will add at least six million kilowatts of power to the line in the next ten years and this power combined with our waterfront sites and adequate navigation could provide many jobs for our 90 million young people under 25 years of age, who will be looking for a livelihood in the near future.

We do not believe that the upper Columbia should be a single user river and that greater use be utilized or adjustments be implied, and we look forward in long range planning to the day when the great Tri-cities area of Washington shall have the best of navigational services. The waterfront sites in the Boardman-Umatilla and Tri-cities area are fantastic.

Nuclear power plants and industries must be diversified in the Northwest to control polution, conjestion and the event of nuclear attack. The Northwest is a great place to live, it is within the 55° average comfort zone of the entire nation and we know our own children (2,300,000) would like to find enjoyable employment at home in the Northwest.

The last three aluminum metalurgical plants seeking sites in the Northwest have completely ignored Mid-Columbia bus-bar sites and have all chosen deep draft navigation sites away from the power source. We know they all want the combination of cheap power and navigation and it must be made available at the earliest possible time which we think is 1970.

With the completion of the John Day Dam in Oregon and Washington we are through with large projects and we must plan and program new ones to use our fair share of Federal project funding. This has been running around 70 million dollars a year or 10% of Oregon's federal taxes. We think that the Bonneville navigation and power project should be next in line for funding. Investments on the upper river will enhance and amortize investments in the lower river.

As the attached data reveals we have been trying for 30 long years to establish economic adequate navigation on the Mid-Columbia in Oregon and Washington and we think that now is the time and we are very optimistic that it can be established by 1970 and if so, we might not lose the $70 million expansion of an industry we already have.

We hereby ask that every effort, consideration and energy be devoted to the expansion of commerce and industry by placing a new lock in Bonneville Dam 690'x96'x40', raise the Bonneville pool to 82 feet and produce 500,000 more KW's of electricity. Where can you find a better project?

Sincerely,

S/
Dewey West Jr., President

S/
Rupert Kennedy
Executive Director

S/
Wilbur F. Kelly
Secretary-Treasurer

MAILING LIST: (7-26-67)

Senator Wayne Morse
" Mark O. Hatfield
" Warren G. Magnuson
" Henry M. Jackson

Senate of the United States
Washington, D. C. 20510

Congressman Al Ullman
" Catherine May

House of Representatives
Washington, D. C. 20515

LT. COLONEL LEWIS A PICK JR.
Asst. Director of Civil Works for Pacific Divisions
Corps of Engineers
Dept. of the Army
Washington, D. C. 20315

MR. E. FENTON SHEPARD, Acting Chief
Resources and Civil Works Division
Bureau of the Budget
Washington, D. C. 20503

Honorable Tom McCall
Governor of Oregon
Salem, Oregon 97310

Honorable Dan Evans
Governor of Washington
Olympia, Washington

BRIGADIER GENERAL ELMER P. YATES
North Pacific Division Engineer
210 Custom House Building
Portland, Oregon 97209

LT. COLONEL JOHN E. THOMAS JR.
Acting District Engineer
Corps of Engineers
628 Pittock Block
Portland, Oregon 97205

MR. PAUL B. NORDSTROM, Administrator
Dept. of Planning and Development
560 State Office Building
Portland, Oregon 97201

DIRECTOR, Department of Commerce and Industry
State of Washington
Olympia, Washington

Herbert G. West, Exec. Vice President
Inland Empire Waterways Association
Walla Walla, Washington

# WATERFRONT INDUSTRIAL SITES

TO JUSTIFY

EXPANDED DEEP-DRAFT NAVIGATION

35 foot minimum

PROPOSED LAND USE

| | | | |
|---|---|---|---|
| Urban | U, Ue | Extensive Agriculture | A1, A2, A3 |
| Industrial | I1, I2, I2m | Irrigation Pump Station | ⊙, ⊙T |
| Mines, Pits, & Quarries | △ | Forest | F |
| Public Port Terminal | ✿, ✿T | Parks & Recreation | P1, P1e, P2, P3 |
| Military Reservation | M | Launching Ramp | *, *T, ✱, ✱T |
| U. S. Power Project | D, E | Fish & Wildlife | W1, W2 |
| Residential Agriculture | R | Nonproductive Open Space | N |

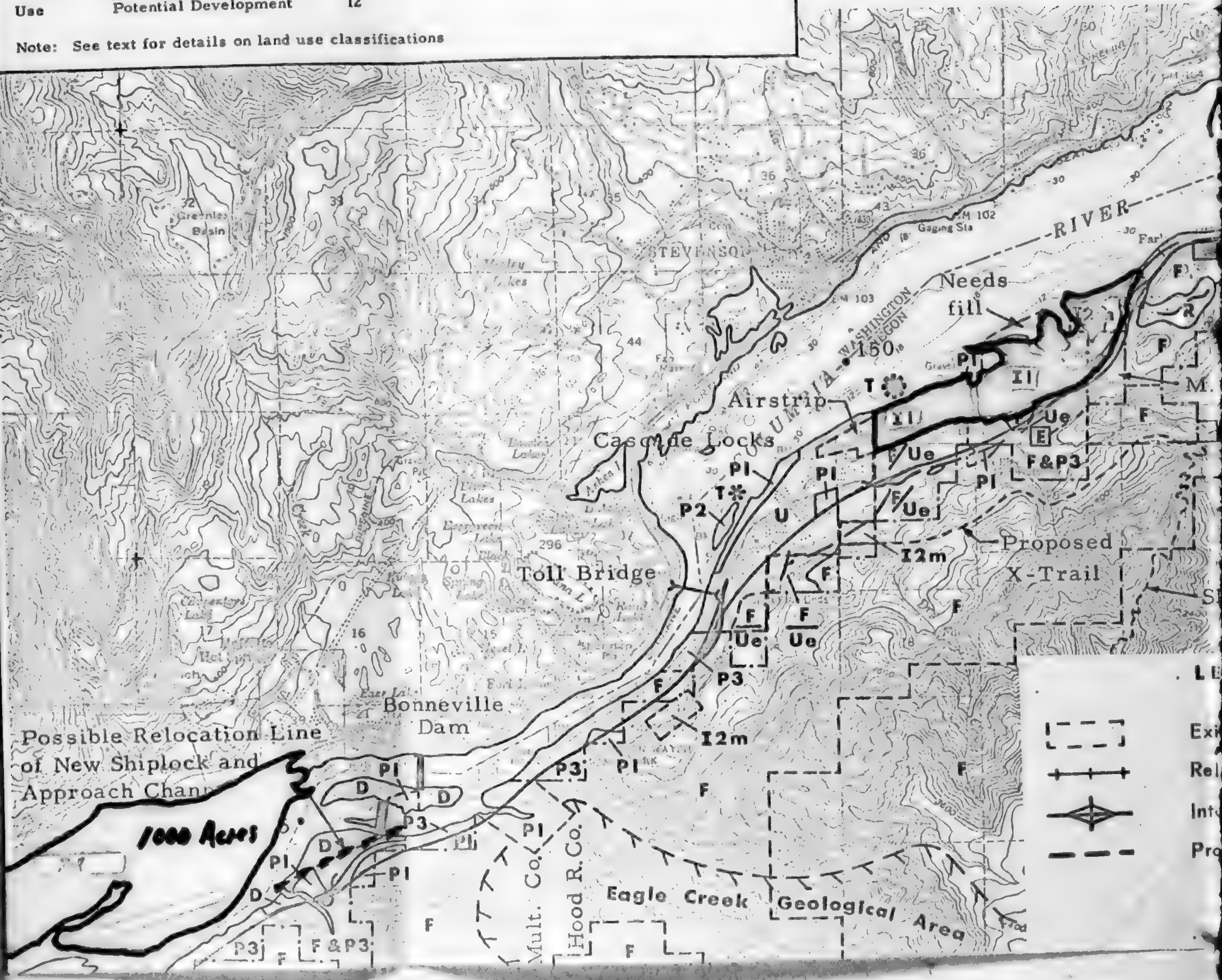
Future Land Use — Initial Development / Potential Development — A3 / I2

Note: See text for details on land use classifications

# WATERFRONT DEVELOPM

Mid-Columbia Planning Council

JULY 1966



Greenleaf Basin
STEVENSON
COLUMBIA RIVER
WASHINGTON
OREGON
Needs fill
150
Airstrip
Cascade Locks
Toll Bridge
Proposed X-Trail
Bonneville Dam
Possible Relocation Line of New Shiplock and Approach Chann
1000 Acres
Mult. Co.
Hood R. Co.
Eagle Creek Geological Area
P1
P2
P3
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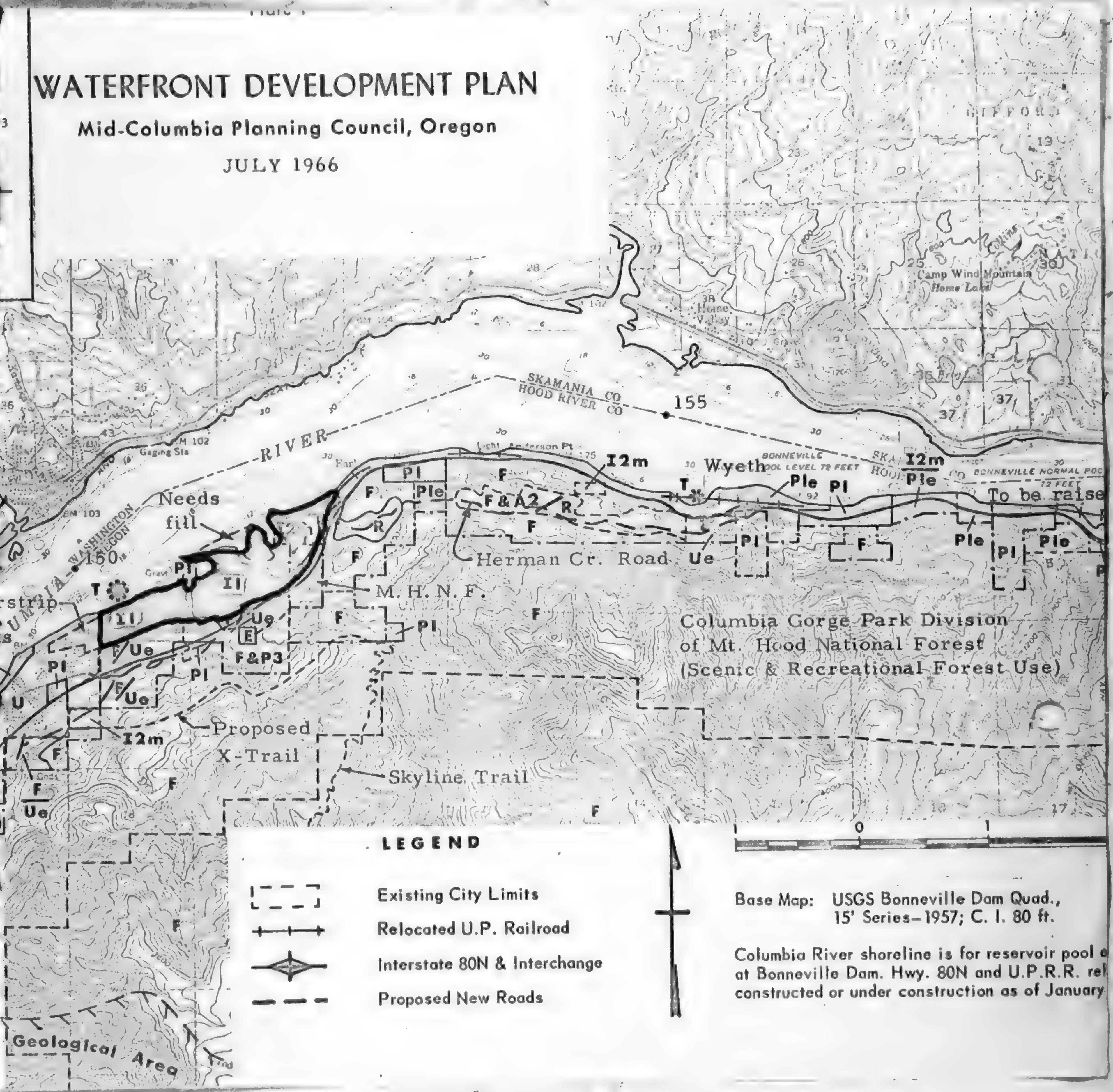
# WATERFRONT DEVELOPMENT PLAN

Mid-Columbia Planning Council, Oregon

JULY 1966


RIVER
SKAMANIA CO
HOOD RIVER CO
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Wyeth
Needs fill
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F & A2
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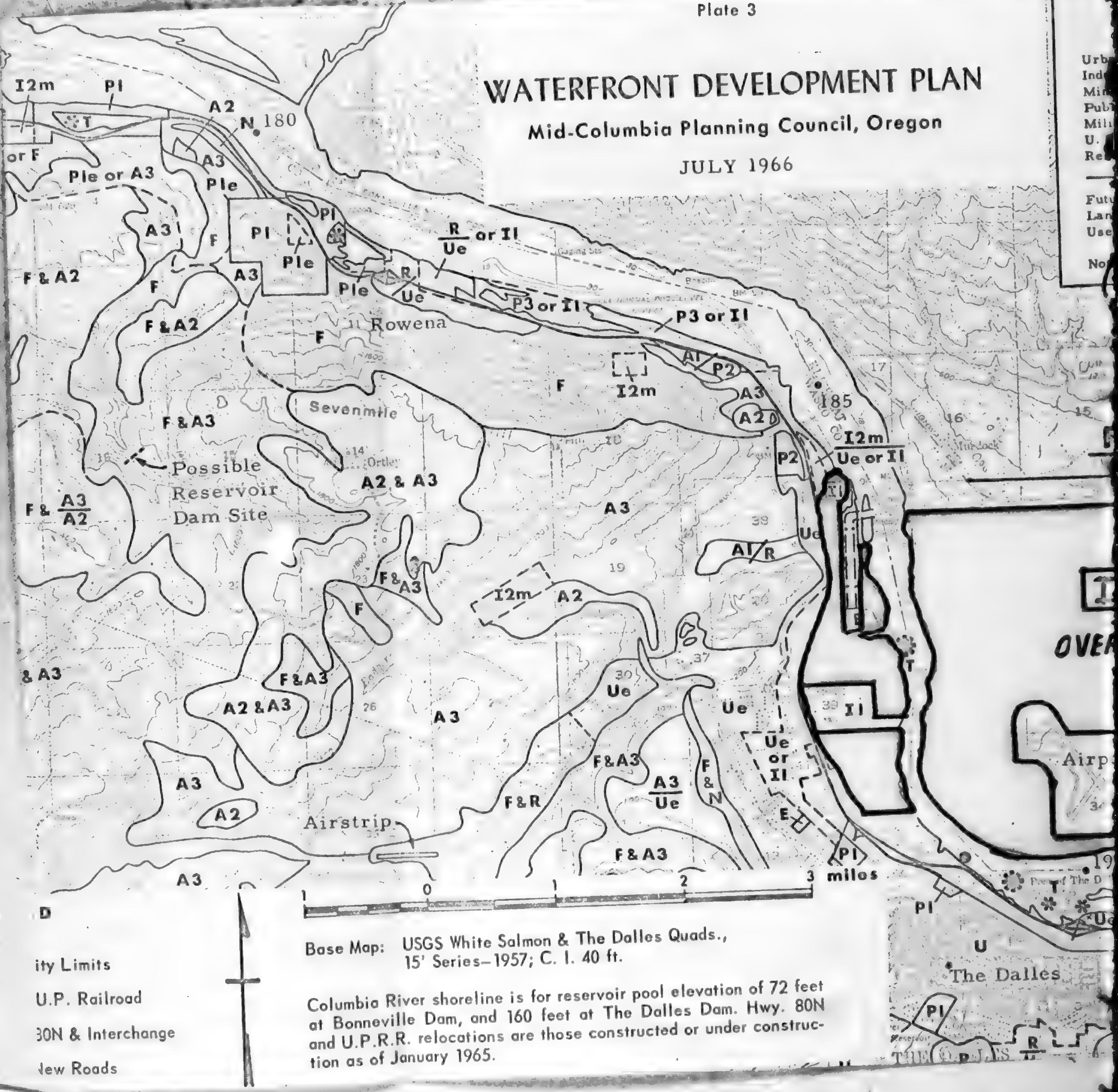
I1
Ue
E
F&P3
U
M. H. N. F.
Herman Cr. Road
To be raise
Columbia Gorge Park Division of Mt. Hood National Forest (Scenic & Recreational Forest Use)
Proposed X-Trail
Skyline Trail
Geological Area
Camp Wind Mountain
Home Valley
BONNEVILLE POOL LEVEL 72 FEET
BONNEVILLE NORMAL POOL 72 FEET
WASHINGTON
OREGON
Gaging Sta
LEGEND
Existing City Limits
Relocated U.P. Railroad
Interstate 80N & Interchange
Proposed New Roads
Base Map: USGS Bonneville Dam Quad., 15' Series—1957; C. I. 80 ft.
Columbia River shoreline is for reservoir pool a
at Bonneville Dam. Hwy. 80N and U.P.R.R. rel
constructed or under construction as of January
0
1

Plate 3

# WATERFRONT DEVELOPMENT PLAN

## Mid-Columbia Planning Council, Oregon

JULY 1966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P3 or I1
P3 or I1
A1
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I2m
A3
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185
I2m
Ue or I1
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F & A3
Sevenmile
Ortley
Possible
Reservoir
Dam Site
A2 & A3
A3
F & A3/A2
F&A3
A1/R
I2m
A2
Ue
& A3
F&A3
A2 &A3
A3
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Ue or I1
F&A3
A3/Ue
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No
D
ity Limits
U.P. Railroad
30N & Interchange
lew Roads

Base Map: USGS White Salmon & The Dalles Quads., 15' Series—1957; C. I. 40 ft.

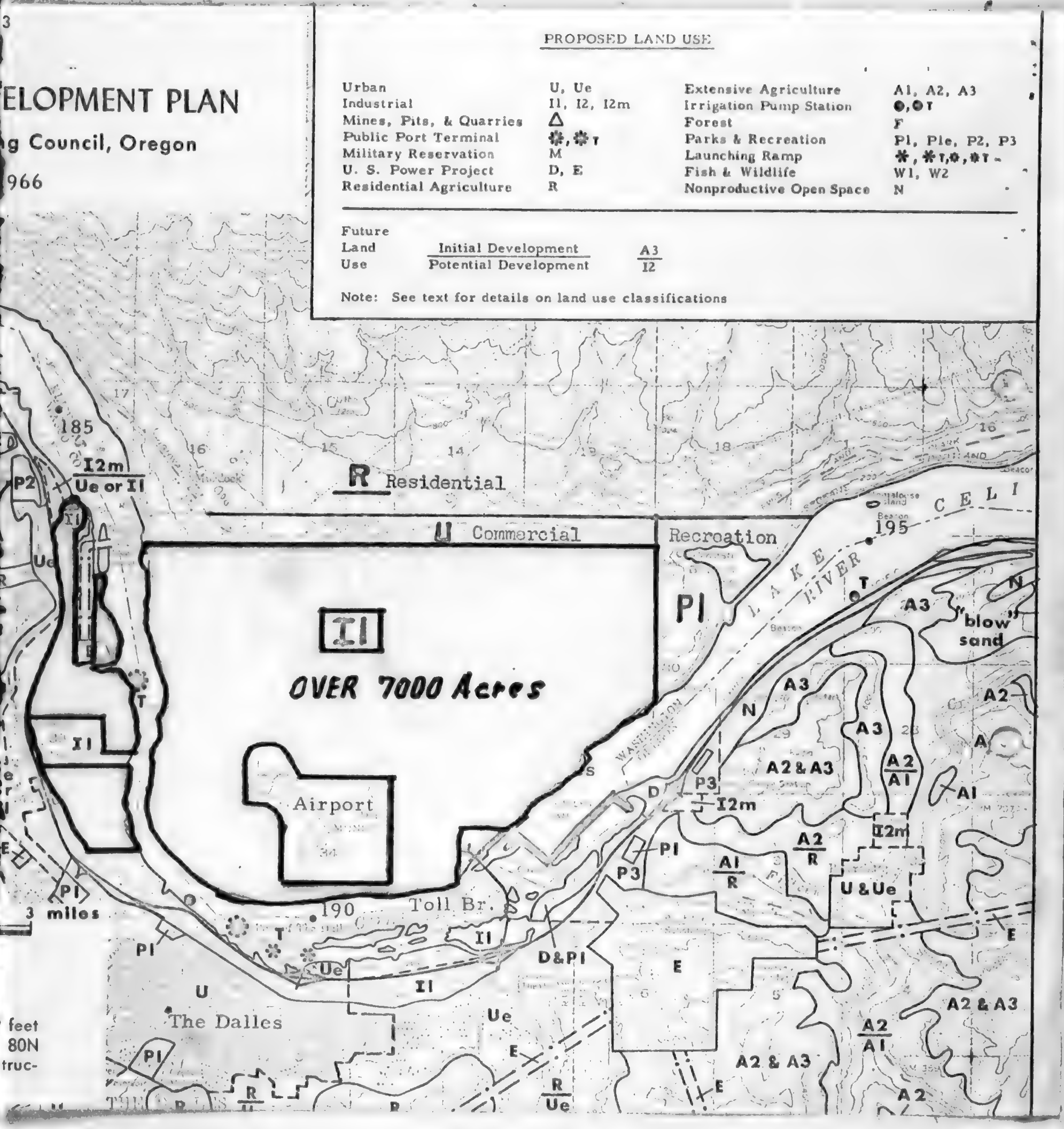
Columbia River shoreline is for reservoir pool elevation of 72 feet at Bonneville Dam, and 160 feet at The Dalles Dam. Hwy. 80N and U.P.R.R. relocations are those constructed or under construction as of January 1965.

3

## ELOPMENT PLAN

g Council, Oregon

966



17
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18
16
I2m
Ue or I1
P2
I1
Ue
R Residential
U Commercial
Recreation
P1
I1
OVER 7000 Acres
Airport
I1
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LAKE CELILO
RIVER
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A3
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PROPOSED LAND USE

| | | | |
|---|---|---|---|
| Urban | U, Ue | Extensive Agriculture | A1, A2, A3 |
| Industrial | I1, I2, I2m | Irrigation Pump Station | ●, ●T |
| Mines, Pits, & Quarries | △ | Forest | F |
| Public Port Terminal | ✿, ✿T | Parks & Recreation | P1, P1e, P2, P3 |
| Military Reservation | M | Launching Ramp | ✱, ✱T, ✿, ✱T |
| U. S. Power Project | D, E | Fish & Wildlife | W1, W2 |
| Residential Agriculture | R | Nonproductive Open Space | N |

Future Land Use: Initial Development / Potential Development — A3 / I2

Note: See text for details on land use classifications

# STATE OF WASHINGTON

# PROMOTION

# FOR DEEP DRAFT NAVIGATION

# ON THE UPPER COLUMBIA RIVER

November 23, 1966

Senator Henry Jackson
U. S. Senate
Washington, D. C. ET-NL

Dear Senator Jackson: **DEEP DRAFT NAVIGATION**

Thank you for your letter of October 27 enclosing Brigadier General W. P. Leber's letter dated October 21, 1966.

We are wondering if the General's answer fully analyzed our correspondence or Mr. Buell's with respects to the problems that confront the people of our area. As you will note by the attached news article, this problem is now very rapidly becoming a problem to all the people of the great Northwest. We are all very much aware of Ivan Bloch's qualifications and ability to analyze the industrial needs of the Northwest. Could you suggest that the General examine Volume II of the Pacific Northwest Major Industrial Plant Sites, a publication sponsored by the U. S. Department of Interior and more specifically those industrial site areas along the shores of the Columbia River, where deep draft will be a distinct advantage to prospective industry? These sites represent thousands of acres not available elsewhere for water transportation oriented industry. We feel that it is the intent of Congress to develop our rivers to their maximum use. More particularly with the Columbia River as being the Nation's greatest hydroelectric power producer and having a great navigation capacity to serve all oceans. We are sure the General will feel that the development of the upper river would enhance and justify the expenditures on the lower river.

Is the General aware that transcontential railroads and freeways running concurrently with the river would support a number of commodities from the entire Nation and that these commodities can be accommodated or processed in the most efficient and economic manner, if these water grade routes are fully utilized? Does he not feel that congestion, slowdowns, embargos and demurrage can be avoided with deep draft?

Would the General agree that implementing the United States-Canada water storage program would greatly expedite and level the hydro power output of the Columbia River and the two great industrial assets, bar power and commerce?

These factors alone should be sufficient to create a more realistic approach by the Corps of Engineers.

The fact that varied methods of transportation and the vast arteries are so important as to create a transportation department by Congress should only add to the necessity of these projects for our people.

The General may be interested in knowing that we now have a prospective combined industrial interest who indicated they would make use of deep draft navigation for ocean commerce vessels with The Dalles-Dallesport area as the upriver destination. Representatives of this potential industry have just recently again assured the use of deep draft.

We understand that dredging and facility accommodations for barge traffic is proposed for the upper reaches of the Columbia River. This should also justify the accommodations further inland on the Columbia River for ocean commerce.

Many other organizations and municiple corporations along with industry are supporting this program.

Sincerely yours,

JOSEPH L. DRESSEL
Manager Consumer Services

JLD:wh

FORM E-123X 10M 6-67 8705

G.P.R. - I 205

9555

COMMISSIONERS
GLENN L. JACKSON, CHAIRMAN
MEDFORD
DAVID B. SIMPSON, MEMBER
PORTLAND
FRED W. HILL, MEMBER
HELIX

STATE OF OREGON
STATE HIGHWAY DEPARTMENT
SALEM 97310

July 27, 1967

The District Engineer
Portland District, Corps of Engineers
628 Pittock Block
Portland, Oregon 97205

Dear Sir:

Re: Proposed highway bridge
across the Columbia River
Your File: NPPND-WM-P

This is in response to your July 25 letter soliciting our comments on Governor McCall's letter to you dated July 12.

The Highway Department will concur in the Governor's request that the south channel's vertical clearance be 48 feet. Also, we will, as the Governor suggested, carefully evaluate the horizontal clearance over the proposed south navigation channel. The Department will do everything it can to satisfy all parties on the pier spacing in line with a design that will receive Federal Bureau of Public Roads approval and assurance that this State will receive its statutory share of Federal-aid highway financing.

Very truly yours,

Forrest Cooper
State Highway Engineer

NOTED
R. W. ELLISON

cc R. L. Porter
Tom Edwards
F. B. Klaboe
Victor D. Wolfe
Ivan Merchant
L. W. Rulien
A. E. Johnson

RECEIVED
OREGON STATE HIGHWAY DEPT.
BRIDGE DIVISION
AM JUL 27 1967 PM
7,8,9,10,11,12,1,2,3,4,5,6

8705

I-205 Col. R. Br. 9555

NOTED
R. L. PORTER

July 12, 1967

District Engineer
Corps of Engineers
U.S. Army
Portland District
628 Pittock Block
Portland, Oregon 97205

Att: George E. Hyde, Chief
Navigation Division

Dear Sir:

In response to receipt of Public Notice 67-22 (84 REVISED), 1507-21 (Columbia R. - Bridge) -8, applicant, Oregon State Highway Department, dated June 13, 1967, five (5) agencies, State of Oregon, replied with no objection or comment.

The State Marine Board recommended the following:

1. That the bridge design provide for a span and pier placing to allow for a potential secondary small-boat channel near the south side of Government Island where there would be additional vertical clearance.

Item 3 applies to this.

2. That the vertical clearance of the small-boat channel be a minimum 48 feet.

7-26-67 [illegible]

3. That the horizontal clearance of the small-boat channel through the bridge be increased to at least 200 feet.

We request the south channel's vertical clearance be 48 feet and that a careful evaluation be made of wider pier spacing over this proposed south navigation channel.

The State Game Commission indicated they had insufficient information to comment on the proposed bridge.

Sincerely,

Governor

NOTED
R. W. ELLISON

JUL 20 1967

cc: State Water Resources Board
State Marine Board
Oregon State Game Commission

9905

FILE
# 9555

DEPARTMENT OF THE ARMY
PORTLAND DISTRICT, CORPS OF ENGINEERS
628 PITTOCK BLOCK
PORTLAND, OREGON 97205

JUN 2 67

1 JUN 1967

NPPND-WM-P

REFERRED TO admin
BY SECRETARY

REFERRED TO
BY DEPUTY STATE HIGHWAY ENGINEER
cc Edwards
6-2-67

State of Oregon
State Highway Department
Salem, Oregon 97310

Reference: Proposed Highway Bridge across the Columbia River between Portland, Oregon and Vancouver, Washington

Gentlemen:

As result of testimony received at and prior to Public Hearing on 25 May 1967, we need the following information to complete our study of I-205 Bridge permit application:

1. Incremental cost of raising south channel span clearance from 40 to 48 feet, 48 to 55 feet and 55 to 65 feet assuming no alignment change was required. 3

2. Cost of same incremental vertical clearance heights assuming alignment was moved eastward so each of the changes would not reduce the glide-path clearances for air traffic presently agreed upon between your agency and the Port of Portland.

3. Cost of moving complete bridge upstream approximately 5,000 feet and/or whatever other feasible incremental distances there are.

Please furnish this information as soon as practicable.

Sincerely yours,

William J. Talbott
WILLIAM J. TALBOTT
Colonel, Corps of Engineers
District Engineer

NOTED
D. O. Christensen

Routing
Morgan
Decker
Bond
Barber
Walker
Glenn
Swan

Poss
[illegible]
[illegible]
Scott
[illegible]
[illegible]
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RECEIVED
JUN 5 1967
CONSTRUCTION
DIVISION

RECEIVED
JUN 2 1967
OREGON
STATE HIGHWAY COM

RECEIVED
MAY 25 1967
8205
FOR FILING

HAROLD S. HIRSCH
President

DENNIS J. LINDSAY

HOWARD B. SOMERS

ROBERT R. WILSON

General Manager
BALDWIN

Ass't. General Manager

Chief Engineer
DOW

Public Affairs Dept.
W. G. PROCTOR

P.O. Box 3529, Portland, Oregon 97208
Telephone (503) 224-4260

May 17, 1967

Mr. Glenn L. Jackson, Chairman
Oregon State Highway Commission
c/o Pacific Power & Light Company
920 S.W. Sixth Avenue
Portland, Oregon

Dear Mr. Jackson:

I promised you at the informal meeting held between members of the Oregon State Highway Commission and The Port of Portland Commission on Thursday evening, May 11, (in which there was an absence of a quorum of the Port Commissioners) that I would have for you by today, Wednesday, May 17, conclusive word from the Port Commission regarding the Highway Commission's compromise proposal to move the I-205 Columbia River bridge location 1200 feet farther east so as not to unreasonably restrict the eastward extension of Portland International Airport's North runway. We telephoned your office today and learned that you wouldn't be back in Portland until late today. Therefore, this letter is being delivered to you so you may have the Port's answer today nevertheless.

Had the drawing delivered by the Highway Commission's staff yesterday, May 16, adhered to the bridge positioning on the aerial photograph (per lines we pasted thereon at our informal discussion May 11) which indicated a 1200 foot eastward move of the bridge, so as to just clear the easterly edge of the airport's extended clear zone, this would have been acceptable to the Port. However, the aforementioned Oregon State Highway drawing shows a bridge alignment which angles through the clear zone to such an extent that it materially restricts the runway extension. Were the bridge to be constructed in the location shown on your drawing, and at the proposed elevation to provide a 48-foot channel clearance, the maximum allowable airport runway extension would only be 1870 feet instead of the 2500 feet we need. This, therefore, is inadequate and unacceptable.

The Port's request was for a bridge location that would permit a runway extension of 2500 feet with a 48-foot channel clearance, a minimum of a 50:1 approach slope, and a 17-foot clearance above

cc: Cap
[illegible]

Brought to the office
to Mr. Jackson 5-18.
(Mr. Jackson [illegible] by phone -

the bridge deck. The Port would prefer a 100:1 slope to provide an additional safety factor (which would have meant a 3600-foot eastward move of the bridge instead of 1200 feet), but will accept the 50:1 slope which meets the minimum FAA requirements.

Based on the tentative alignment pasted on the aerial photograph at our meeting, and the discussion at that time, the Port assumed that a runway extension of close to 2500 feet would be possible. This pasted alignment provided for the centerline of the bridge to be moved approximately 1200 feet east. However, in the interest of showing its good faith, the Port was and still is willing to accept that 1200 foot change, but must insist that the centerline of the bridge not encroach more than 100 feet into any part of the clear zone applicable to a 2500-foot runway extension. It should be noted that such an encroachment would restrict the runway extension to 2,295 feet, and this is the minimum acceptable to the Port and constitutes the maximum compromise the Port can make.

I repeat, the 1200 feet eastward move of the bridge proposed at our meeting would achieve this providing the bridge is not angled or curved to encroach more than 100 feet into the clear zone. The 100-foot tolerance is provided as further indication of our efforts to accommodate our needs to the Oregon State Highway Commission's I-205 bridge problem.

Sincerely,

THE PORT OF PORTLAND COMMISSION

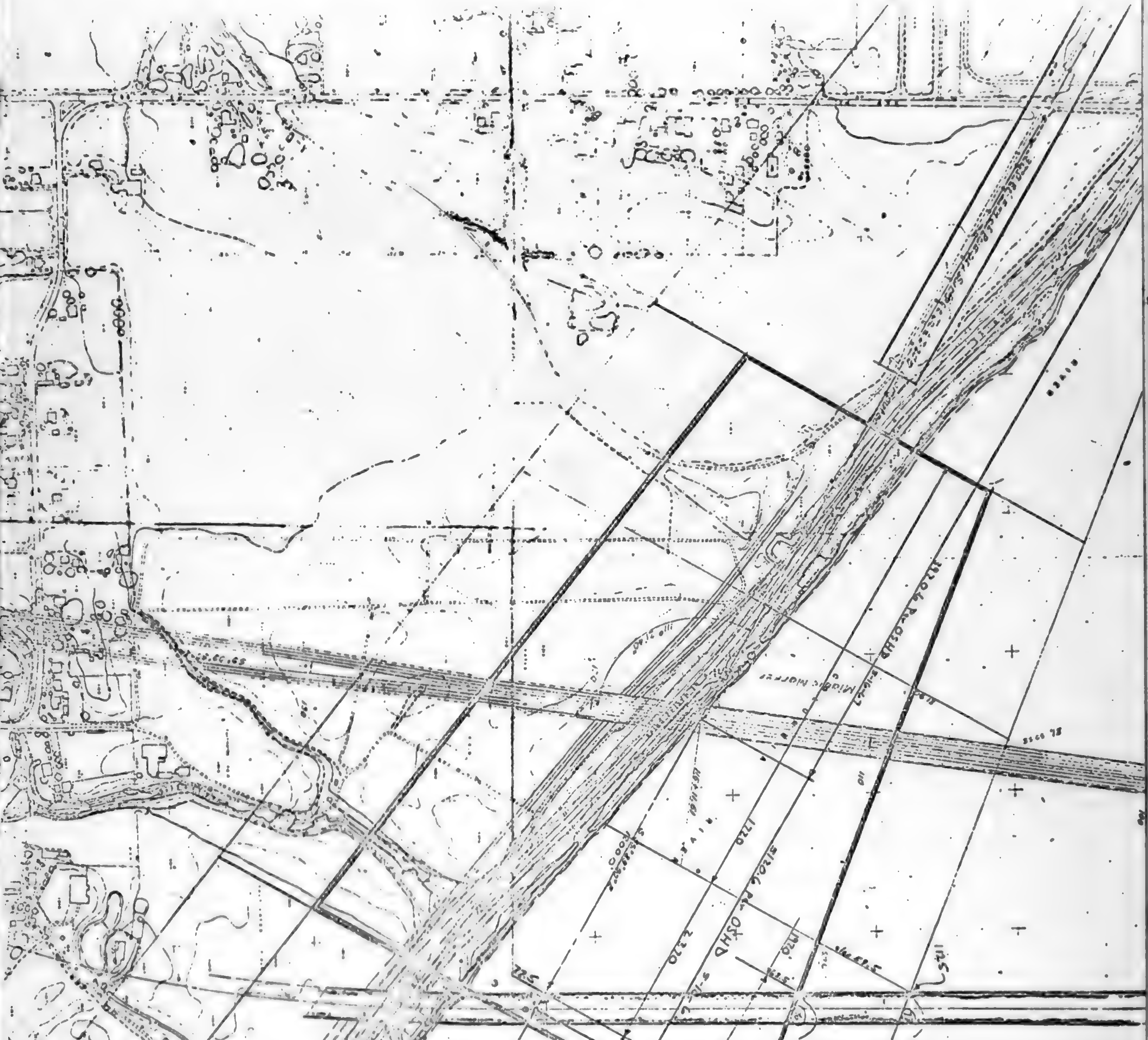
Harold S Hirsch

HAROLD S. HIRSCH
President

HSH:md

cc: Port of Portland Commissioners

Enclosures - Photocopies of the pasted-up aerial drawing used at the meeting of the two Commissions, and the base drawing obtained May 16 from the Oregon State Highway Commission's staff, with the 2500 foot clear zone and dimension lines drawn in by Port staff.



about 6' clear over dike
1.5' obstruction extended RW
1.25' obstruction extended Rw
No obstruction extended Rw
O = elev of 17' line.
22.5
12.5
elev 75

9765

FORM E-30 50M 10-65

Routing

1

Decker

7 Bond

Barber

Walker

4 Glenn

5 Swan

Pease

Morelock

Trout

Scott

Wills

Litchfield

3 Olsen CEO

# OREGON STATE HIGHWAY DEPARTMENT

INTER-DEPARTMENT CORRESPONDENCE

Salem, Oregon
May 11, 1967

B RECEIVED
MAY 12 1967
CONSTRUCTION
DIVISION

**SUBJECT:**

**To:** MEMO TO FILE

On this date, a meeting was held in the Hilton Hotel in Portland re the location of the Columbia River Bridge on I-205.

The Port of Portland was represented by:

| | |
|---|---|
| Dennis J. Lindsay | Members of the Port Commission |
| Howard B. Somers | |
| Harold S. Hirsch | |
| Erling E. Jacobsen | |
| George M. Baldwin | General Manager |
| R. A. Neumeister | Asst. General Manager |

The Highway Commission was represented by:

| | |
|---|---|
| Glenn L. Jackson | Chairman |
| David B. Simpson | Member |
| Forrest Cooper | State Highway Engineer |

After a review of the various problems involved, it was proposed by Chairman Jackson that the bridge be shifted easterly along the axis of the north runway of the Portland Airport a distance of 1200 feet, with the necessary adjustments being made in the alignment of the highway to conform to this point. After considerable discussion, the staff members of the Port of Portland indicated that this was acceptable to them. The Port Commission stated that it appeared to be acceptable to them also, but they wished to discuss it with members who were not in attendance and promised a decision by May 17.

I have issued instructions to proceed with the necessary engineering and estimating work, after which the matter will be presented to the Bureau of Public Roads for its approval.

REFERRED TO
Olson
Asst. Const. Engr.

For your Info.
B

Forrest Cooper
State Highway Engineer

FC:fn

cc George Baldwin
A. W. Parsons
Highway Commission
R. L. Porter
Tom Edwards
F. B. Klaboe
Victor D. Wolfe
A. E. Johnson
L. W. Rulien
F. D. Morgan

8915

9

**Commissioners**
HAROLD S. HIRSCH
*President*
LEE E. CALDWELL
*Vice-President*
JOHN S. BRANDIS
*Secretary*
DONALD G. DRAKE
*Treasurer*
DENNIS J. LINDSAY
LEW S. RUSSELL
HOWARD B. SOMERS
ERLING E. JACOBSEN
ROBERT B. WILSON

*General Manager*
GEORGE M. BALDWIN

*Ass't. General Manager*
R. A. NEUMEISTER
*Acting Mgr. Aviation Dept.*
H. M. HANNA
*Mgr., Industrial Development Dept.*
L. E. ARNOLD, JR.
*Mgr., Marine Dept.*
A. J. HEINEMAN
*Comptroller*
E. W. BAUER
*Mgr., Research and Planning Dept.*
W. S. DIRKER
*Chief Engineer*
R. F. DOW
*Mgr., Public Affairs Dept.*
W. G. PROCTOR

THE PORT OF PORTLAND
P.O. Box 3529, Portland, Oregon 97208
Telephone (503) 224-4260

May 5, 1967

Mr. Tom Edwards
Assistant Engineer
Oregon State Highway Department
State Highway Building
Salem, Oregon 97310

Dear Mr. Edwards:

Reference is made to our conversation during our meeting on May 3 concerning the Port's testimony before the Corps of Engineers scheduled hearing on May 25 concerning the I-205 bridge.

On the basis that testimony is desired only on the marine aspects of the proposed bridge so that the marine clearances, both vertical and horizontal, may be tied down and that you may then have the basis for design and subsequent evaluation of the aviation considerations, the Port will testify as follows:

1. A short statement concerning the fact that the Port's testimony is only that concerning the marine aspects with the understanding that the aviation considerations would be resolved later.

2. We will endorse the proposed vertical and horizontal clearances over the main channel.

3. We will ask for an increase in vertical clearances on the south channel to 48 feet over mean low water based on elevation of 2.5 mean low water and the depth of the bridge structure as 8 feet below the road surface.

Cooper
Porter
Merchant } info
Copy- Klaboe
5-10-67

NOTED
TOM EDWARDS

NOTED
FORREST COOPER

With regard to paragraph 3 above, we will submit an exhibit consisting of a survey we made of all the commercial towboats in this area to back up our statement that increasing the vertical clearances to the 48 feet would allow passage of approximately two-thirds of the vessels listed during a flood stage of 20.5 feet.

Dinner Meeting
6:30 - Hilton

At this time this would appear to be the pertinent points we would submit in relationship to marine clearances only. As you are aware, there is a meeting scheduled between the Highway Commission and The Port of Portland Commission next Thursday evening, May 11, and it is hoped that some type of common ground may be found for agreement at that time.

Sincerely yours,

THE PORT OF PORTLAND

R. A. Neumeister
ROBERT A. NEUMEISTER
Assistant General Manager

RAN:pk

RECEIVED
MAY 8 1967
OFFICE OF
STATE HIGHWAY ENGINEER

DEPARTMENT OF DEFENSE
UNITED STATES OF AMERICA

DEPARTMENT OF THE ARMY
PORTLAND DISTRICT, CORPS OF ENGINEERS
628 PITTOCK BLOCK
PORTLAND, OREGON 97205

-5359

APR 19 67

REFERRED TO
BY SECRETARY

NPPND-WM

18 APR 1967

Edwards,

State of Oregon
State Highway Department
Salem, Oregon 97310

Re: Proposed Columbia River Bridge I-205

Gentlemen:

This letter is to confirm earlier conversations with Mr. Merchant of your office. A Public Hearing will be held at 10:00 a.m. on 4 May 1967 in Room 36, State Office Building (Portland), to consider your application for the I-205 bridge crossing the Columbia River.

It is understood that your agency will furnish appropriate large scale drawings to explain your requested alignment and clearances. This office will furnish a large scale photograph or drawing showing river depths in the immediate vicinity of the proposed bridge. This office will have available for distribution copies of Sheets 1, 2 and 3 which accompanied Public Notice 67-22. However, Sheet 3 of 3 will be altered to read as follows: At El 20.5 (CRD) a single line will be struck through the words "ordinary high water" and the words "ten-year flood after Canadian storage" will be added. This change in wording will be explained in my opening statement. It is suggested that the ten-year flood height of 20.5 CRD be used in your drawings and presentations.

Your agency will be called upon to offer an opening statement (or statements) at the conclusion of my opening remarks. No cross-examination will be allowed from the floor but questions addressed to me will be noted and an opportunity for answering these questions will be allowed. } ←

I have inclosed several of the responses to our Public Notice so you can anticipate some of the questions to be raised. Other correspondence on this bridge is available in this office for your examination.

If you have further questions, please contact this office.

Sincerely yours,

William J Talbott
WILLIAM J. TALBOTT
Colonel, Corps of Engineers
District Engineer

Merchant
RB

5 Incls
1-Ltr Port of Portland
2-Ltr Rose Cty Yacht Club
3-Ltr The Oregonian
4-Ltr Port of Camas-Washougal
5-Ltr Air Transport Assn

NOTED
IVAN D. MERCHANT

RECEIVED
APR 19 1967
OREGON
STATE HIGHWAY COMMISSION

#905

RECEIVED
MAR 27 1967

FOR FILING

8

March 24, 1967

Mr. Fred S. McKnight, Chief
Air Traffic Branch
Federal Aviation Agency
FAA Building, Boeing Field
Seattle, Washington 98108

Dear Mr. McKnight:

Re: SEA-OE-66-172

On March 20 we received a notice from the FAA that stated that the State Highway Department had submitted a revised proposal concerning the location of Interstate 205.

It is true that we have submitted a proposal to the Corps of Engineers for the river crossing. It was our intention that the submission to the Corps be used only for this purpose. In other words, we felt that we must determine what horizontal and vertical clearances would be required before we could further evaluate our position with reference to the airport clearances.

We regret if we have caused you any inconvenience in this matter as it was not our intention to do so. Nevertheless, we would like you to hold any decision on the location of I-205 with respect to its position in the airport vicinity until you hear further from us.

Very truly yours,

Forrest Cooper
State Highway Engineer

By

F. B. Klaboe
Assistant State Highway Engineer

cc: Forrest Cooper
R. L. Porter
Tom Edwards
Ivan Merchant
F. D. Morgan
A. E. Johnson

FBK:arb

cc: Mr. George Baldwin, Port of Portland
Mr. Robert Dow, Port of Portland

RECEIVED
MAR 22 1967
FOR

FEDERAL AVIATION AGENCY
SEATTLE AREA OFFICE
FAA Building, Boeing Field
Seattle, Washington 98108

March 8, 1967

IN REPLY REFER TO: SEA-OE-66-172

TO ALL CONCERNED:

On October 3, 1966, the Federal Aviation Agency circularized to known interested persons a proposal (Case SEA-OE-66-172) by the State of Oregon Highway Department to construct an Interstate Highway Bridge over the Columbia River for Highway I-205 beginning at a point 3700 feet east of the approach end of Runway 28R at the Portland International Airport, thence in a northerly direction to a point 9600 feet north-northeast of the approach end of Runway 28R on the north bank of the Columbia River. Objections were received from the Air Transport Association, the Air Force and the Port of Portland. The case was discussed with the objectors, the State of Oregon Highway Department, the Oregon State Board of Aeronautics and the Bureau of Public Roads at an informal meeting held in Portland on December 8, 1966. Since that date, the proposal has been discussed further with the interested parties.

Because of objections received the State of Oregon Highway Department has revised their design of the bridge to lower its height by seventeen feet under the approach surface to Runway 28R. The bridge has been increased in height by eighteen feet over the main channel of the river to accommodate shipping requirements. The following revised proposal has been submitted to the Federal Aviation Agency.

OBSTRUCTION EVALUATION CASE SEA-OE-66-172

Proponent: State of Oregon Highway Department

Structure: Interstate Highway Bridge

Location and Height: Crossing the dike along the south shore of the Columbia River at a point 3950 feet east of the approach end of Runway 28R as measured along the runway centerline extended, at a height four feet above the present height of the dike (Bridge roadway at 48 feet AMSL) thence in a northerly direction crossing the south channel of the river between the Oregon shore and Government Island with the roadway gradually increasing in height to 80 feet AMSL over the downstream end of Government Island, thence northward across the main Columbia River channel with the roadway increasing in height to 168 feet AMSL to clear the main shipping channel and on to the Washington shoreline (See attached charts). The height of the roadway of the bridge along the north shore of the Columbia River will be 180 feet AMSL, increasing to a maximum height of 238 feet AMSL where the bridge terminates on the hillside north of the Columbia River.

Copy to Merchant
3-22-67

NOTED
TOM EDWARDS

| | |
|---|---|
| Possible Effect On Aviation: | The roadway plus seventeen feet allowance for vehicles will not penetrate the approach surface to Runway 28R. Beginning at a point 6800 feet northeast of the end of Runway 28R to its termination on the Washington shoreline the bridge roadway would exceed the standards of Federal Aviation Regulations Part 77, Paragraph 77.25 (a)(4), in that the bridge will penetrate the horizontal surface 150 feet above the Portland International Airport by varying amounts up to 45 feet. The terrain along the north bank of the Columbia River extends up to 310 feet MSL and presently penetrates the horizontal surface for Portland International Airport by varying amounts.<br>The proposed construction would not affect instrument approach procedures or instrument approach minimums at Portland International Airport. |

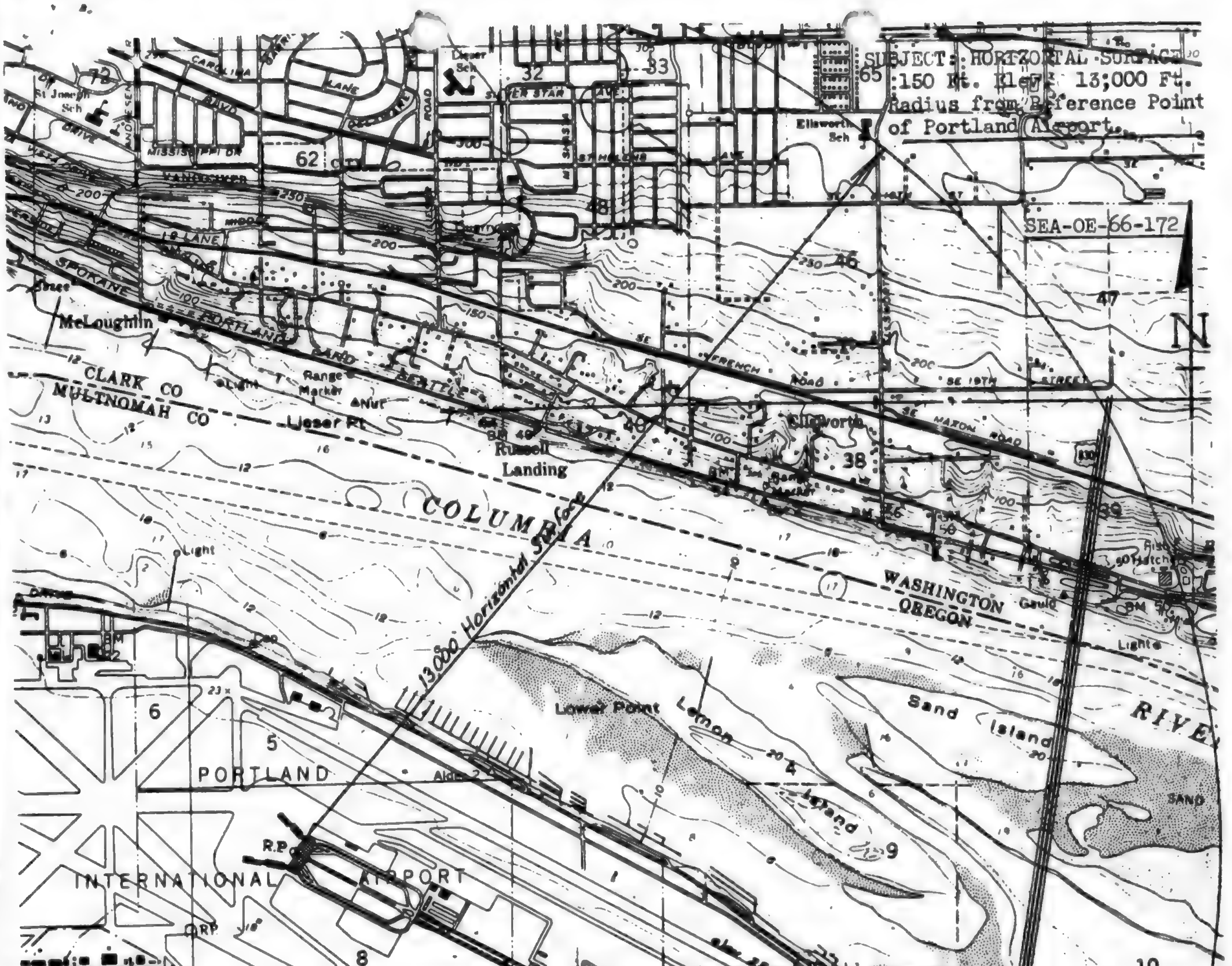
Please forward your comments regarding the possible effect on aviation to Chief, Air Traffic Branch, address above, on or before April 17, 1967.

Fred S. McKnight

Fred S. McKnight
Chief, Air Traffic Branch

Enclosures

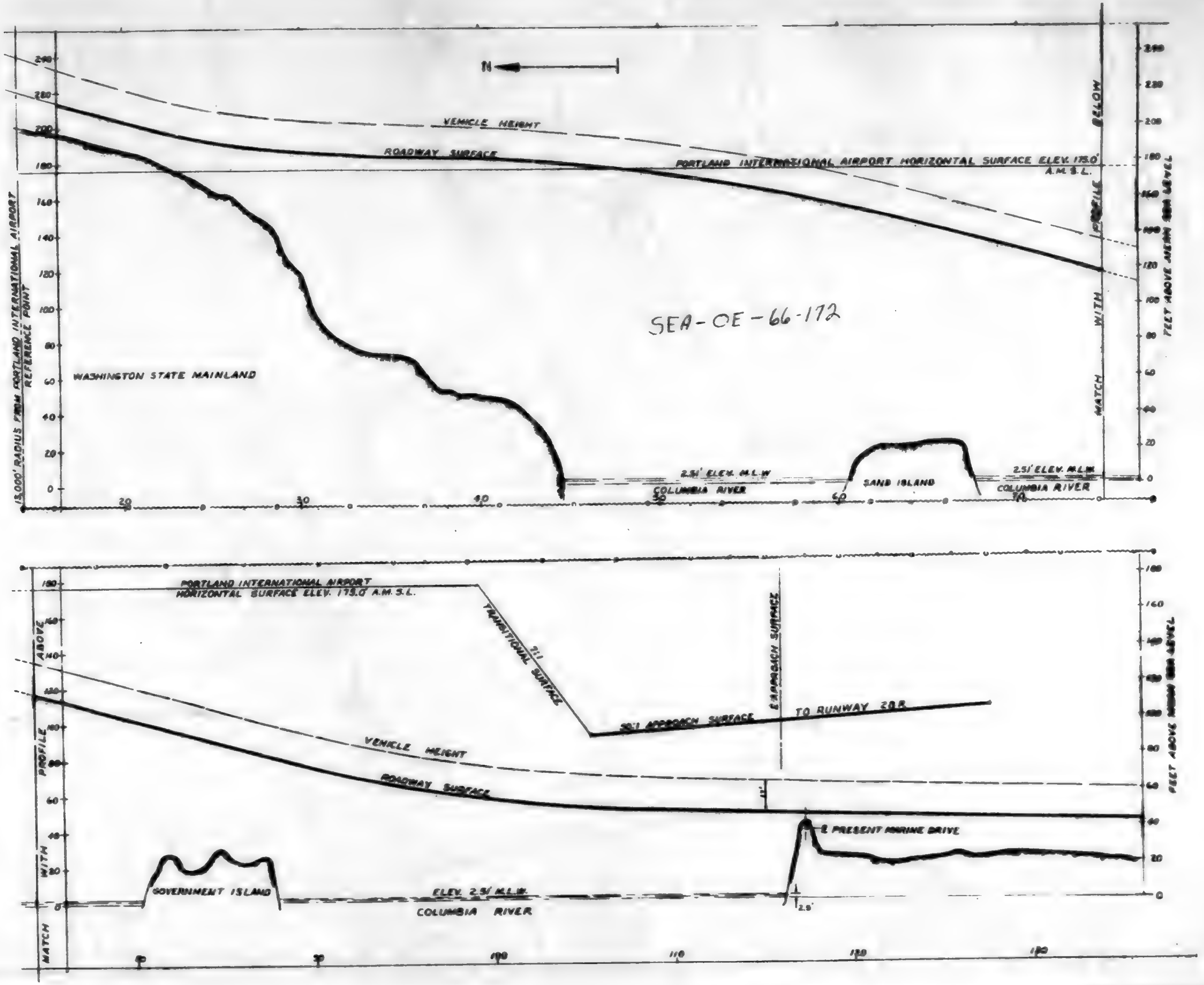
RECEIVED
MAR 20 1967
OFFICE OF
STATE HIGHWAY ENGINEER



SUBJECT: HORIZONTAL SURFACE
150 Ft. Elev., 13,000 Ft.
Radius from Reference Point
of Portland Airport.

SEA-OE-66-172

13,000 Horizontal Surface
R.P.
N
McLoughlin
CLARK CO
MULTNOMAH CO
Russell Landing
Ellsworth
COLUMBIA
WASHINGTON
OREGON
Lower Point
Lemon Island
Sand Island
RIVER
SAND
PORTLAND
INTERNATIONAL AIRPORT
PORTLAND
AIR FORCE BASE
(BM 23)
Columbia
Slough
GOLF COURSE
AIRPORT BDY
NE LOMBARD ST
Approach Area
Gravel Pit
COLUMBIA BLVD
UNION
SEA-OE-66-172

N
VEHICLE HEIGHT
ROADWAY SURFACE
PORTLAND INTERNATIONAL AIRPORT HORIZONTAL SURFACE ELEV. 175.0' A.M.S.L.
15,000' RADIUS FROM PORTLAND INTERNATIONAL AIRPORT REFERENCE POINT
WASHINGTON STATE MAINLAND
2.51' ELEV. M.L.W.
COLUMBIA RIVER
SAND ISLAND
2.51' ELEV. M.L.W.
COLUMBIA RIVER
MATCH WITH PROFILE BELOW
FEET ABOVE MEAN SEA LEVEL
20
30
40
50
60
70
PORTLAND INTERNATIONAL AIRPORT HORIZONTAL SURFACE ELEV. 175.0 A.M.S.L.
TRANSITIONAL SURFACE 7:1
50:1 APPROACH SURFACE TO RUNWAY 28R
℄ APPROACH SURFACE
VEHICLE HEIGHT
ROADWAY SURFACE
℄ PRESENT MARINE DRIVE
GOVERNMENT ISLAND
ELEV. 2.51' M.L.W.
COLUMBIA RIVER
MATCH WITH PROFILE ABOVE
FEET ABOVE MEAN SEA LEVEL
80
90
100
110
120
130

SEA-OE-66-172

8905

TCIZ 9555

[illegible] file

FORM E-129

COMMISSIONERS
GLENN L. JACKSON, CHAIRMAN
MEDFORD
KENNETH N. FRIDLEY, MEMBER
WASCO
DAVID B. SIMPSON, MEMBER
PORTLAND

STATE OF OREGON
STATE HIGHWAY DEPARTMENT
SALEM 97310

February 16, 1967

Colonel William J. Talbott
District Engineer
Corps of Engineers
Portland District
628 Pittock Block
Portland, Oregon 97205

Re: Proposed Columbia River Bridge
I-205
Your File NPPND-WM

Dear Sir:

The matter of clearances to be established on the Columbia River crossing of I-205 outlined in your letter of February 13 has been considered.

The State Highway Commission and the Port of Portland Commission held a joint meeting with respect to this. At that meeting, the decision of the Highway Commission and the Port of Portland was to apply to the Corps of Engineers for a crossing permit to determine what the minimum clearances to meet the Corps' requirements would be. After this is established, the Highway Commission will again meet with the Port of Portland with a concrete proposal in hand.

We have recently submitted to the Federal Aviation Agency a profile showing a clearance of 152 feet over the main channel and 40 feet over the south channel. Any increase of the 40-foot clearance would merely be an encroachment into the area which the Port of Portland desires to keep free of intrusion.

We would, therefore, ask that you proceed with action on the request for a crossing permit as outlined in our letter of January 11. We will accept the 152-foot vertical clearance and 400-foot horizontal clearance over the main channel, but would request 40-foot vertical and 186-foot horizontal clearances over the south channel.

We would request that you revise the dimensions on the drawings with the application we have on file to conform to these clearances.

[illegible]

Very truly yours,

Forrest Cooper
State Highway Engineer

By ORIGINAL SIGNED
TOM EDWARDS

Tom Edwards
Assistant State Highway Engineer

TE:ja

cc Federal Aviation Agency
Room 108, FAA Building
Boeing Field
Seattle, Washington

cc/enc. Mr. C. G. Prahl
Director of Highways
Washington State Highway Department
Highways-Licenses Building
Olympia, Washington

Mr. W. A. Bulley
District Engineer
Washington State Highway Department
4200 Main Street
Vancouver, Washington

bc Forrest Cooper
R. L. Porter
F. B. Klaboe
Victor D. Wolfe
Ivan Merchant (enc).
A. E. Johnson (enc.)

RECEIVED
OREGON STATE HIGHWAY DEPT.
BRIDGE DIVISION
AM FEB 17 1967 PM
7,8,9,10,11,12,1,2,3,4,5,6

8765

DEPARTMENT OF THE ARMY
PORTLAND DISTRICT, CORPS OF ENGINEERS
628 PITTOCK BLOCK
PORTLAND, OREGON 97205

REFERRED TO
Edwards
BY DEPUTY STATE HIGHWAY ENGINEER
See me please

NPPND-WM

REFERRED TO
Admin
BY SECRETARY

13 FEB 1967

-1865
FEB 14 67

info copy to Rec. Sec. 2-14

State of Oregon
State Highway Department
Salem, Oregon 97310

Gentlemen:

Please refer to your letter of 11 January 1967 and the inclosed plans of the I-205 crossing of the Columbia River.

In developing information on the proposed crossing, this office has held preliminary talks with representatives of the FAA and the Port of Portland. It is understood there may be coordination required between your agency and the Port of Portland as to the location of the South Channel crossing. It is suggested that this coordination between two state agencies should be accomplished prior to public advertisement of your proposal by this office.

It is difficult to anticipate all of the responses of navigation interests to our public notice. However, preliminary investigation reveals that 152' (CRD) x 400' would be a good starting point for advertising on the main span. The responses to the South Channel span proposal are difficult to anticipate. It is anticipated that a 48' (CRD) clearance would probably have little opposition from commercial interests. Clearances less than that would probably bring forth varying degrees of opposition. It is noted that an upstream move of the South Channel span would probably make possible an increase of vertical clearance (over and above the 40' proposed in your letter) and still allow flexibility in the planning for future use and expansion of the Portland Airport.

Further action on your letter of 11 January 1967 will be withheld pending reply to this letter.

Sincerely yours,

William J. Talbott
WILLIAM J. TALBOTT
Colonel, Corps of Engineers
District Engineer

RECEIVED
FEB 14 1967
OFFICE OF
STATE HIGHWAY ENGINEER

RECEIVED
FEB 14 1967
OREGON
STATE HIGHWAY COMMISSION

Copy furnished:
Federal Aviation Agency
Rm 108, FAA Bldg.
Boeing Field
Seattle, Washington 98108

FORM E-123X 50M 4-62

COMMISSIONERS
GLENN L. JACKSON, CHAIRMAN
MEDFORD
KENNETH N. FRIDLEY, MEMBER
WASCO
DAVID B. SIMPSON, MEMBER
PORTLAND

STATE OF OREGON
STATE HIGHWAY DEPARTMENT
SALEM 97310

February 9, 1967

Mr. Fred McKnight, Chief
Air Traffic Branch
Federal Aviation Agency
Western Region, Room 121
FAA Building
Lloyd Field
Seattle, Washington 98108

Subject: I-205
Columbia River Bridge
Br. No. 9555

Dear Mr. McKnight:

By letter of September 16, 1966, plans and profiles of a proposed bridge across the Columbia River immediately east of the Portland International Airport were furnished you. Recently, you requested a revised grade line which would provide 152' of vertical clearance over the main channel of the Columbia River.

I am enclosing two copies of a revised profile indicating the proposed 152' of clearance over the main channel and 40' of clearance over the secondary south channel parallel to Marine Drive. This profile has two lines indicated: The higher line indicates the profile if 152' of vertical clearance over the main channel is provided. The lower profile indicates the profile that would be used for 135' of vertical clearance over the main channel and the same 40' of vertical clearance over the south secondary channel. This last profile is the profile used to obtain navigation clearances proposed in the request for a navigation permit made to the Corps of Engineers by our letter of January 11, 1967. The profile furnished you on September 16th provided a clearance over Marine Drive of 17' and cleared the 50:1 approach glide path. Because of objections raised by the Port of Portland, the profile was lowered to overcross Marine Drive at the lowest elevation possible. The additional clearance below the 50:1 approach surface is indicated on this drawing at approximately Sta. 105+40.

NOTED
F. B. KLABOE

The State is agreeable to raising the profile grade to provide 152' of vertical clearance for navigation provided the infringement into the horizontal surface created thereby is acceptable to the FAA.

Will you please advise as to your ruling on this matter.

Very truly yours,

Ivan D. Merchant
Bridge Engineer

IDM:mb
Encls.
cc: Tom Edwards
Fred Klaboe
A. E. Johnson (w/2 encls.)

NOTE TO A. E. JOHNSON:

These grade lines are preliminary only and are subject to change, particularly in the area north of the main channel crossing where they are subject to revision by the State of Washington to fit their geometric needs.

IDM

8705 9555

January 11, 1967

The District Engineer
Corps of Engineers
U.S. Army
626 Pittock Block
Portland 5, Oregon

RECEIVED
OREGON STATE HIGHWAY DEPT.
BRIDGE DIVISION
AM MAY 1 0 1968 PM
7,8,9,10,11,12,1,2,3,4,5,6

Dear Sir:

Application is hereby made by the State Highway Department of the State of Oregon at Salem, Oregon, for approval by the Chief of Engineers and the Secretary of the Army of plans of a bridge to be constructed across the Columbia River immediately east of the Town of Vancouver, Washington, and the easterly part of Portland, Oregon, 112.7 miles above the mouth of the waterway. The original tracings and four prints are enclosed herewith.

Legal authority for the structures is found in the General Bridge Act of 1946. Enclosed herewith, is a copy of authorization from the Secretary of the State Highway Department, including excerpts from the Highway Commission meeting authorizing this construction.

Reference to Sheet 2 of the enclosed drawings, will indicate the proximity of the proposed structure to the Portland International Airport and more particularly, to Runway 28R which is parallel to and immediately south of N.E. Marine Drive. Because of the location with respect to the International Airport, air navigation clearances as well as navigation clearances are critical. To provide the maximum clearance below the instrument landing glide surface for Runway 28R, the south end of the structure has been lowered to the greatest possible extent and will cross over N.E. Marine Drive approximately two feet above the existing surface. This, of necessity, limits the vertical clearance in the small craft channel parallel to N.E. Marine Drive and which vertical clearance is indicated on Sheet 4 as 40' above Columbia River datum.

Your attention is called to the horizontal clearances shown on Sheet 4 of 120' perpendicular to the small craft channel and 186' parallel to the bridge center line. These clearances are shown as there is no well-defined stable deep water channel for commercial navigation because of filling actions due to river flow.

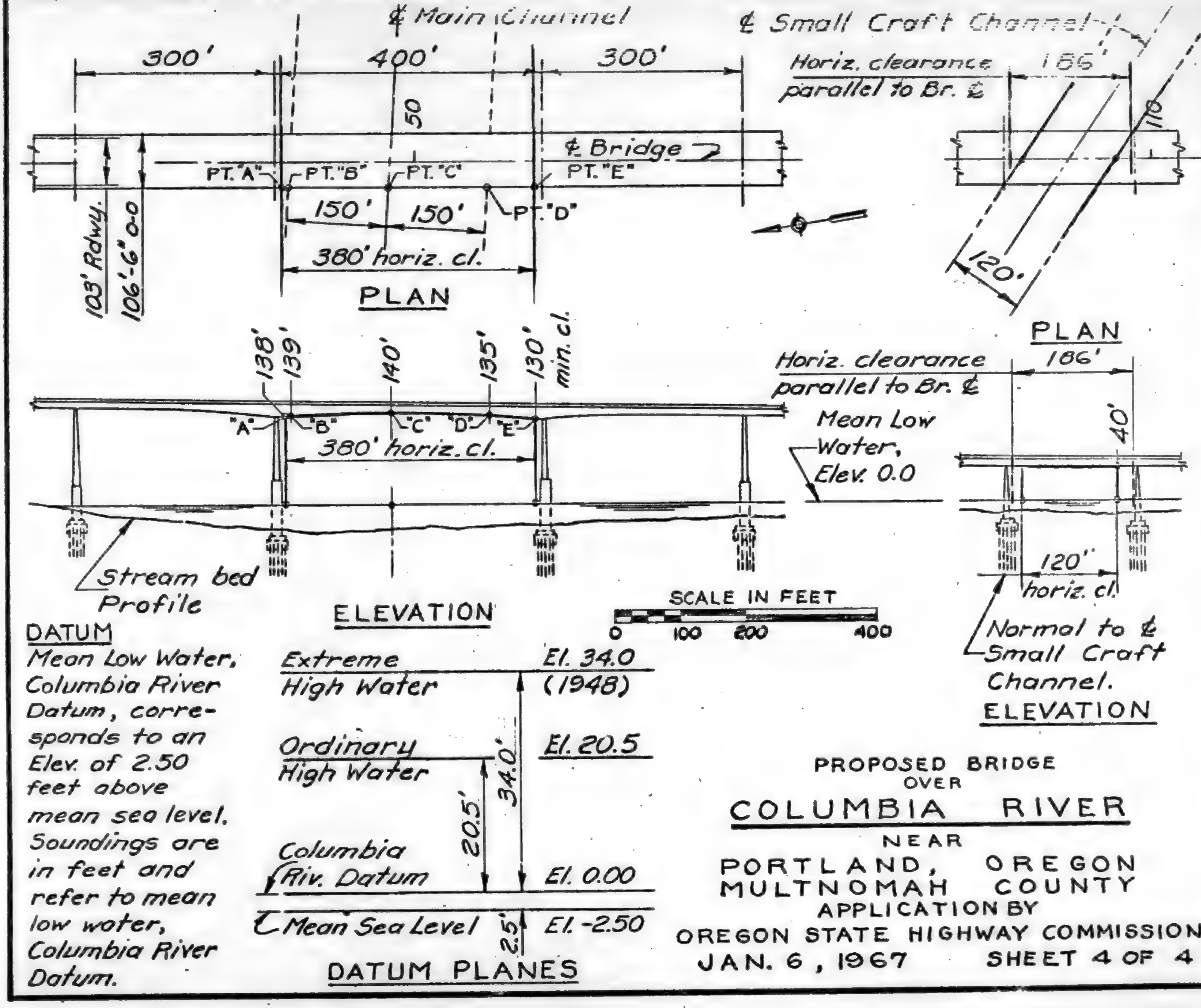
Sheet 4 of 4 indicates a minimum vertical clearance of 135' above mean low water datum at the south edge of the main 300' navigation channel. The clearance above the same datum is 140' at the channel center line because of the proposed girder configuration. The structure, as indicated with the 135' of vertical clearance, encroaches on the "horizontal surface" as established by the FAA. However, due to surrounding terrain, this encroachment is not considered serious by air navigation interests. Any further increase in ve tical clearance over the 135', however, could become objectionable to the air navigation interests.

The State Highway Department submits the enclosed drawings with horizontal and vertical clearances which it believes, is a fair compromise between water and air navigation interests and desires your approval of the proposed construction.

Very truly yours,

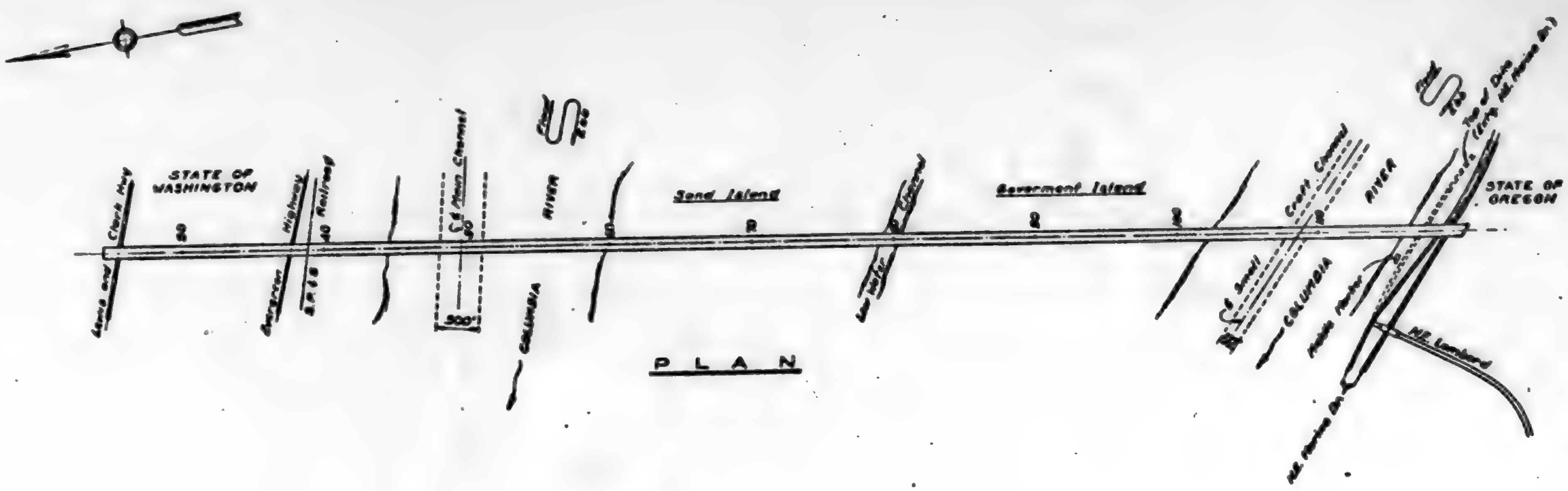
Ivan D. Merchant
Bridge Engineer

IDM:mb
Encls.
cc: Forrest Cooper (w/4 att.)
R. L. Porter (w/4 att.)
Tom Edwards (w/4 att.)
F. B. Klaboe (w/4 att.)
A. E. Johnson (w/4 att.)
C. G. Prahl, Dir. of Hwys. Highways-Licenses Bldg.. Olympia (w/4 att.)
W. A. Bulley, Dist. Engr., 4200 Main St., Vancouver, Wash.(w/4 att.)

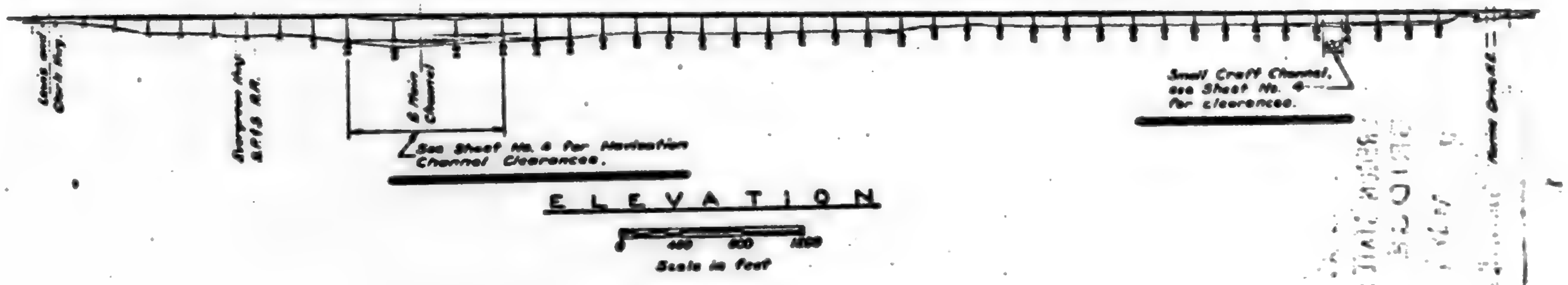

℄ Main Channel
300'
400'
300'
50
℄ Bridge
PT. "A"
PT. "B"
PT. "C"
PT. "D"
PT. "E"
150'
150'
380' horiz. cl.
103' Rdwy.
106'-6" o-o
PLAN
℄ Small Craft Channel
Horiz. clearance parallel to Br. ℄
186'
110
120'
138'
139'
140'
135'
130' min. cl.
"A"
"B"
"C"
"D"
"E"
380' horiz. cl.
Stream bed Profile
ELEVATION
Mean Low Water, Elev. 0.0
PLAN
Horiz. clearance parallel to Br. ℄
186'
40'
120' horiz. cl.
Normal to ℄ Small Craft Channel.
ELEVATION
SCALE IN FEET
0
100
200
400
Extreme High Water
El. 34.0 (1948)
Ordinary High Water
El. 20.5
Columbia Riv. Datum
El. 0.00
Mean Sea Level
El. -2.50
34.0'
20.5'
2.5'
DATUM PLANES

DATUM
Mean Low Water,
Columbia River
Datum, corre-
sponds to an
Elev. of 2.50
feet above
mean sea level.
Soundings are
in feet and
refer to mean
low water,
Columbia River
Datum.

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY COMMISSION
JAN. 6, 1967 SHEET 4 OF 4


STATE OF WASHINGTON
Lewis and Clark Hwy
Evergreen Highway
S.P.&S. Railroad
℄ Main Channel
300'
COLUMBIA RIVER
Sand Island
Low Water Channel
Government Island
℄ Small Craft Channel
COLUMBIA RIVER
Portland Harbor
NE Lombard
NE Marine Dr.
STATE OF OREGON
Toe of Dike (Along NE Marine Dr.)

PLAN

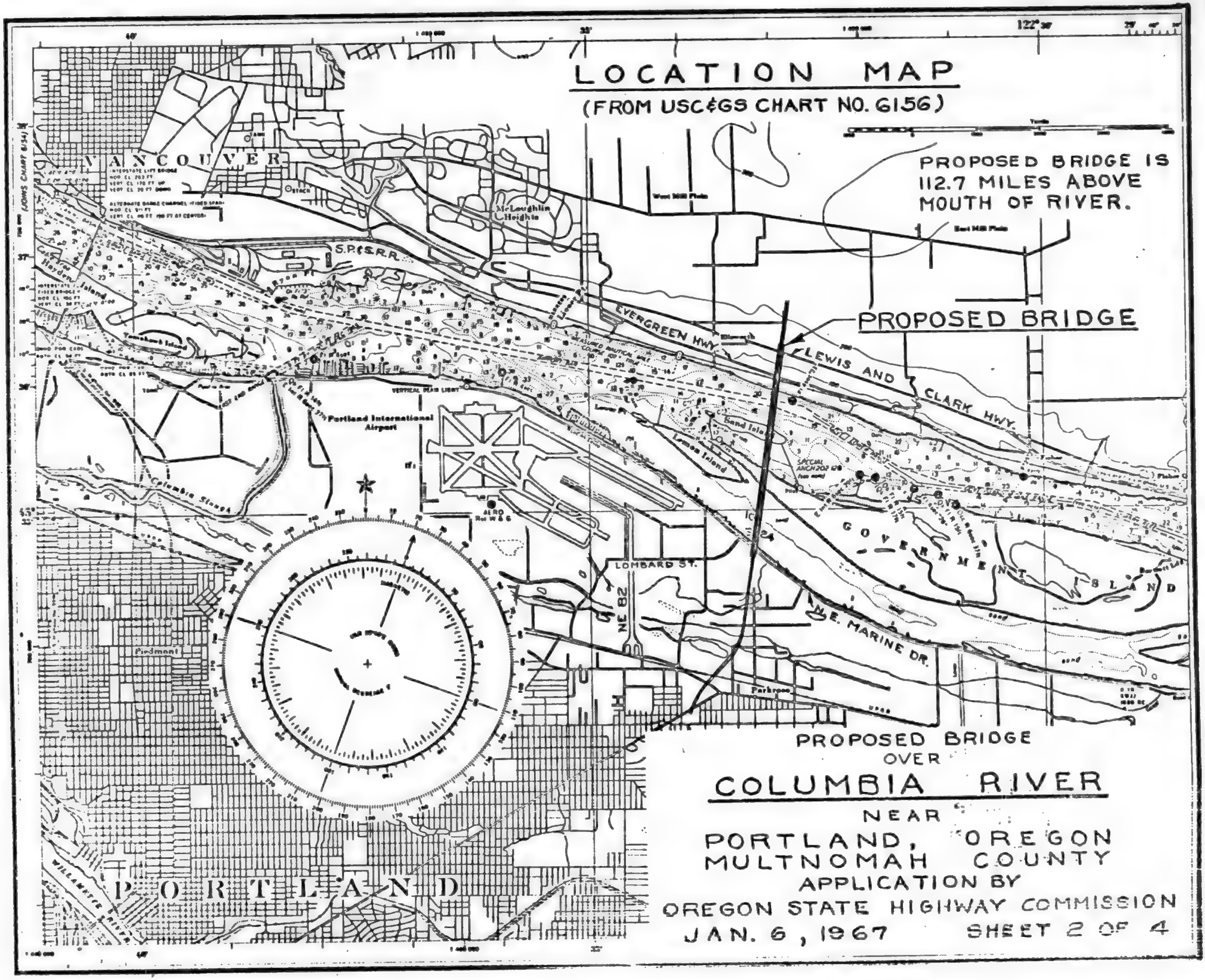

Lewis and Clark Hwy
Evergreen Hwy S.P.&S. R.R.
℄ Main Channel
See Sheet No. 4 for Navigation Channel Clearances.
Small Craft Channel, see Sheet No. 4 for clearances.
Marine Drive N.E.
0
400
800
1200
Scale in Feet

ELEVATION

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY COMMISSION
JAN. 6, 1967 SHEET 3 OF 4

# LOCATION MAP

(FROM USC&GS CHART NO. 6156)


VANCOUVER
McLoughlin Heights
S.P.&S.R.R.
Hayden Island
Tomahawk Island
EVERGREEN HWY.
LEWIS AND CLARK HWY.
Portland International Airport
VERTICAL BEAM LIGHT
Columbia Slough
Sand Island
Lemon Island
SPECIAL ANCHORAGE
GOVERNMENT ISLAND
LOMBARD ST.
NE 82
N.E. MARINE DR.
Parkrose
Piedmont
WILLAMETTE RIVER
PORTLAND
(JOINS CHART 6154)
122°30'
35'
40'

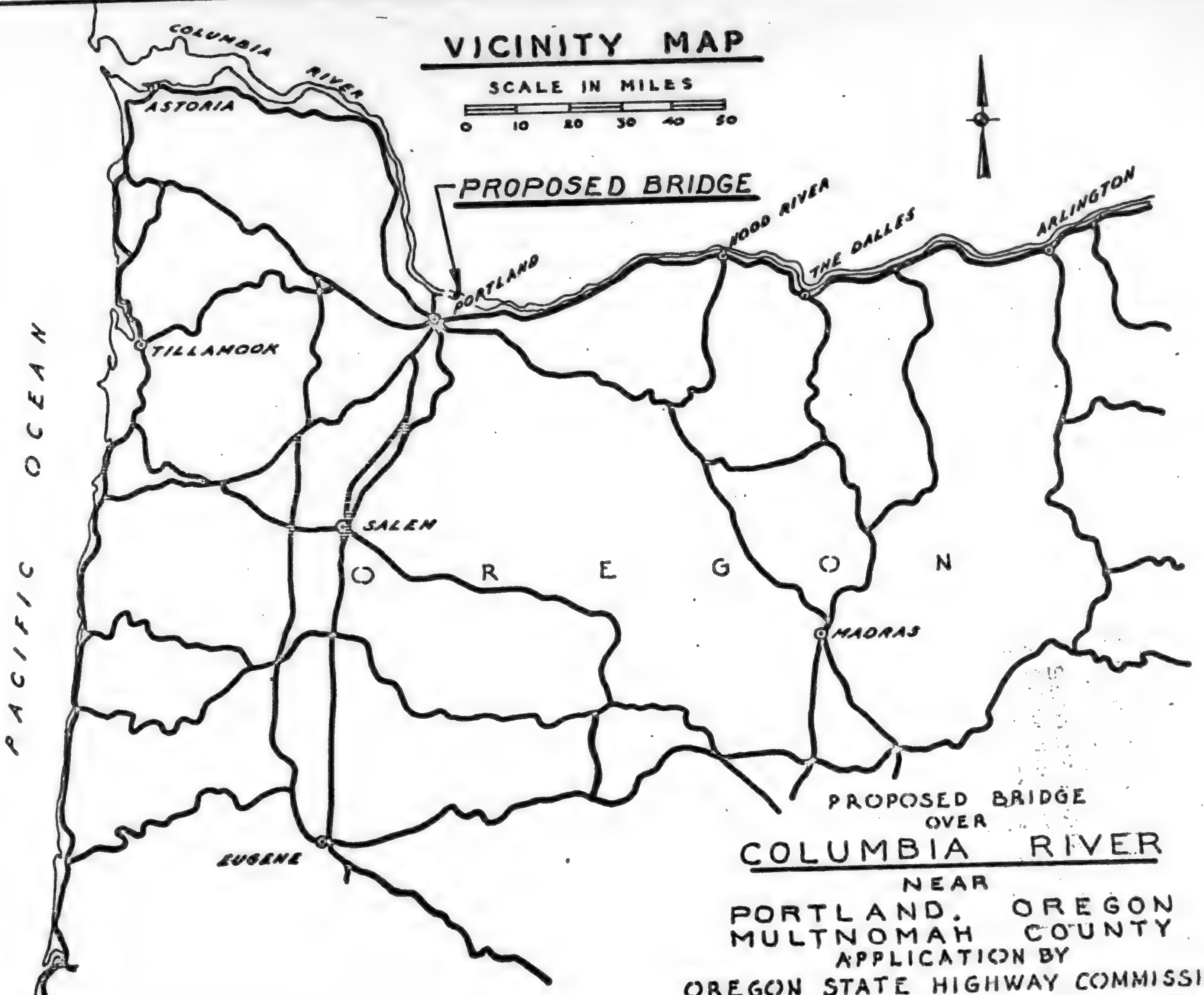
PROPOSED BRIDGE IS
112.7 MILES ABOVE
MOUTH OF RIVER.

PROPOSED BRIDGE

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY COMMISSION
JAN. 6, 1967 SHEET 2 OF 4

FILE COPY BR. # [illegible]

# VICINITY MAP


SCALE IN MILES
0 10 20 30 40 50
PROPOSED BRIDGE
COLUMBIA RIVER
ASTORIA
TILLAMOOK
PORTLAND
HOOD RIVER
THE DALLES
ARLINGTON
SALEM
MADRAS
EUGENE
PACIFIC OCEAN
O R E G O N

PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND. OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY COMMISSION
JAN. 6, 1967 SHEET 1 OF 4

9705

FORM E-30 30M 10-65 SP*23401-734

# OREGON STATE HIGHWAY DEPARTMENT

INTER-DEPARTMENT CORRESPONDENCE

Salem, Oregon 97310
December 12, 1966

SUBJECT:

To: Memo to the Files

The Federal Aviation Agency called a meeting at the Portland International Airport on December 8 to discuss the State's application for a permit to construct the Columbia River crossing on I-205. This meeting was attended by some 30 to 40 people representing the following organizations: Federal Aviation Agency; Port of Portland; Air Transport Command; Air National Guard; Bureau of Public Roads; Washington State Department of Highways and the Oregon State Highway Department.

The meeting was presided over by Mr. Fred McKnight of the FAA's Seattle office. He opened by stating that the meeting was informal and being held so that the FAA could be advised of all the objections to the State's proposal. Members of the State Highway Department explained our plan using suitable maps and profiles. After our presentation, Mr. R. A. Neumeister, Assistant Manager of the Port of Portland, made a presentation. It was generally a plea to the FAA to require the State to provide more clearance than that required by regulations. He stated that no one could predict what the airport's needs would be in 15 to 20 years' time but that it would grow to twice its size by then and that drastic changes in airport construction and design may be forthcoming. After Mr. Neumeister's discussion, the meeting was generally thrown open for comments and questions.

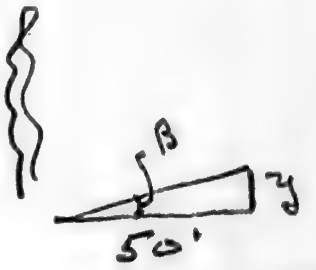
The FAA was queried on the possible effect of the structure as far as the electronic equipment and lighting facilities are concerned. It was their considered opinion that the structure would in no way affect the approach lighting and that the chance of affecting the electronic equipment used for instrument landings would be extremely minimal, if any.

Memo to the Files
Page two
December 12, 1966

It was also stated that portions of the electronic equipment could be changed at small cost if any interference with the structure resulted. The FAA also advised those present that our plan meets all obstruction requirements necessary and further explained that the requirements set up by the FAA and used throughout the United States have liberal latitude for pilot error. In other words, there is a safety factor in these requirements which makes it as safe as can be justified.

The members of the Air Transport Command and the Air National Guard commented that they felt the structure should be moved to give a greater safety factor and to allow for future development that might occur in the airport industry. However, all those who opposed the move agreed that we had met minimum standards and also that the aircraft being designed now for future use are being designed for use on existing runways.

It was also brought out by the FAA that any extension of runway 28R would have to take place in a westerly direction rather than toward the east because of topographic barriers.



y = 1 β = 1°-09
1.5 = 1-43
2 = 2-17
2.5 = 2-52
3 = 3-26

(1:100) 0.5 = 0°-35
0.75 = 0°-57

tan
3° = .05241
2½ = .04366

A discussion concerning the reduction of the 3-degree approach slope now being used to 2½ degrees resulted in a comment from the FAA that they thought such a change would be highly unlikely due to the existing topography in the approach areas. Even so, our proposed structure and roadway would still be sufficiently clear from an obstruction standpoint.

Toward the end of the meeting, a proposal was presented to lower the grade on the State's proposed alignment where it crosses Marine Drive. The State Highway Department advised that it was possible to lower the grade at this point up to a maximum of 23 feet if this would serve any useful purpose. The consensus seemed to be that some minor improvement would be forthcoming from such a maneuver but that it would still not satisfy the objection of the Port who would still like us to move easterly about 1,500 feet.

The State agreed to study this matter and be prepared to alter our proposal if any justification can be found for such a change.

Mr. Porter of the State Highway Department advised that the State was not being arbitrary in this matter and that we had no intention of constructing any facility which would in any way damage the operating characteristics of the Port. However, we had in good faith designed our facility to meet the existing criteria and, lacking any proof that this would damage the Port, do not feel that we could change our line as requested for a cost to the taxpayers of over $2 million in construction and additional road-user costs.

Mr. French of the Bureau of Public Roads advised that the Bureau's stand would have to be that the minimum criteria govern and that any deviation from this criteria which costs a substantial amount of money would not receive Bureau of Public Roads' participation. He reminded the audience that highways all over the United States are being designed using this criteria and, if we were required to provide more clearance than stipulated by the existing criteria in this instance, every other airport in the United States would be requesting the same treatment at a greatly increased expense.

Mr. McKnight advised that he also is required to act on the minimum criteria standards and that it was the FAA's opinion that these had been met. He did give those present 10 more days to submit additional briefs and stated that he would take no action until these briefs, if any, were scrutinized.

Mr. Neumeister stated that he would require the FAA to guarantee the Port that no harm would come from our proposal and if they could not make such a guarantee, he would continue the battle against it through every means available to him.

ORIGINAL SIGNED BY
E. B. KLABOE

F. B. Klaboe
Assistant State Highway Engineer

FBK:srb

cc: Forrest Cooper
R. L. Porter
Tom Edwards
G. E. Rohde
F. D. Morgan
Ivan Merchant
A. E. Johnson

RECEIVED
OREGON STATE HIGHWAY DEPT.
BRIDGE DIVISION
AM DEC 12 1966 PM
7,8,9,10,11,12,1,2,3,4,5,6

Porter

RECEIVED
NOV 14 1966

SP*23401-734

## OREGON STATE HIGHWAY DEPARTMENT

INTER-DEPARTMENT CORRESPONDENCE

Portland, Oregon 97213
November 9, 1966

SUBJECT: East Portland Freeway
(I-205)

To: Mr. F. B. Klaboe
Assistant State Highway Engineer
State Highway Building
Salem, Oregon 97310

Enclosed are copies of correspondence between the Port of Camas-Washougal and Mr. W. A. Bulley, District Engineer, Washington State Highway Commission, at Vancouver. The correspondence includes a letter from Mr. George M. Baldwin, General Manager of the Port of Portland, addressed to Mr. Bulley.

This correspondence is in regard to the proposed vertical and horizontal clearance for the proposed Columbia River Bridge, and which, I believe, will be of interest to you.

A E Johnson
A. E. Johnson
Metropolitan Engineer

NOTED
R. L. PORTER

AEJ:sh

Enclosures

cc F. D. Morgan (w/encs)

NOTED
F. B. KLABOE

cc of all letters

REFERRED TO
Edwards - Merchant -
BY ASST. STATE HWY. ENGR.
11-10-66

RECEIVED
NOV 10 1966
OFFICE OF
STATE HIGHWAY ENGINEER

STATE OF WASHINGTON
DANIEL J. EVANS, GOVERNOR

WASHINGTON
STATE HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS

OFFICE OF DISTRICT ENGINEER
4200 MAIN STREET
VANCOUVER, WASHINGTON

November 4, 1966

Mr. Al Johnson
Division Engineer
Metropolitan Division
Department of Highways
State of Oregon
9200 S. E. McLoughlin Blvd.
Portland, Oregon

Columbia River Bridge
Interstate 205, L-2096

Dear Al:

Attached herewith are copies of the letters from the Port of Camas-Washougal and the Port of Portland to which I referred in my letter of November 2nd with copy to you addressed to Mr. William Volpentest, Manager, Port of Camas-Washougal. I intended to attach copies of these letters to you but they were inadvertently overlooked.

I appreciate the opportunity of being able to meet with you and your staff last Wednesday to work out some of the details pertaining to design traffic for I-205. I am certain that meeting will help to prevent delays which may have occurred if we had not been quickly informed of the proposed changes.

Very truly yours,

W A Bulley

W. A. BULLEY, P.E.
District Engineer

WAB:am
Enc.

STATE OF WASHINGTON
DANIEL J. EVANS, GOVERNOR

1889

**WASHINGTON**
**STATE HIGHWAY COMMISSION**
**DEPARTMENT OF HIGHWAYS**

OFFICE OF DISTRICT ENGINEER
4200 MAIN STREET
VANCOUVER, WASHINGTON

November 2, 1966

Mr. William R. Volpentest
Manager
Port of Camas-Washougal
P. O. Box 1017
Camas, Washington 98607

Columbia River Bridge
Interstate 205

COPY

Dear Sir:

We are in receipt of your letter dated October 21, 1966, wherein you request our comments concerning vertical and horizontal clearances for the I-205 crossing of the Columbia River. You directed a copy of your letter to the Port of Portland and we are also in receipt of a letter from them, with copy to you, explaining their opinions on the subject.

We recognize that good planning dictates that future needs must be considered in design. We also recognize that various agencies are designated to establish the physical clearances of bridges across navigable channels, taking into account realistic views of all of the various agencies and enterprises. I am certain that the clearances which have been recommended by the State of Oregon for the crossing of I-205 have considered realistic needs and also have considered previously established controls which may provide standards of limitations.

For example, at a recent meeting in Washougal we heard the Corps of Engineers indicate that it would be most unlikely that the Columbia River channel would ever be dredged to the presently prescribed limit. This, together with other upstream controls presently in effect, certainly should be, and I am certain have been, considered in establishing bridge clearances. In reference to the same meeting this office is not aware of any established pending plan to modify the Bonneville Locks to which you refer in your letter.

As you are undoubtedly aware, the State of Oregon is administering the design and construction of the bridge. In that capacity I am certain that they are obtaining approvals for clearances in accordance with the established procedures from the various authorized agencies.

Very truly yours,

W. A. BULLEY, P.E.
DISTRICT ENGINEER

WAB:am
cc: Mr. C. G. Prahl
Mr. [illegible] H. Baldwin
Mr. R. E. Johnson ✓

**Commissioners**
HOWARD B. SOMERS
*President*
HAROLD S. HIRSCH
*Vice-President*
ERLING E. JACOBSEN
*Secretary*
LEE E. CALDWELL
*Treasurer*
DONALD G. DRAKE
RAYMOND M. KELL
DENNIS J. LINDSAY
LEW S. RUSSELL
ROBERT B. WILSON

*General Manager*
GEORGE M. BALDWIN

*Ass't General Manager*
R. A. NEUMEISTER
*Mgr., Aviation Dept.*
J. V. FRYBERGER
*Mgr., Industrial Development Dept.*
L. E. ARNOLD, JR.
*Mgr., Marine Dept.*
A. J. HEINEMAN
*Comptroller*
E. W. BAUER
*Mgr., Research and Planning Dept.*
W. S. DIRKER
*Chief Engineer*
R. F. DOW
*Mgr., Public Affairs Dept.*
W. G. PROCTOR

THE PORT OF PORTLAND

Swan Island, P.O. Box 3529, Portland, Oregon 97208

Telephone 503-285-5271

In reply refer to:

October 31, 1966

Klaboe

Mr. William B. Bully, District Engineer
Washington State Highway Department
4200 Main Street
Vancouver, Washington

Dear Mr. Bully:

Reference is made to letter dated October 21, 1966, to your office from the Port of Camas-Washougal, regarding the proposed clearances for the I-205 Columbia River Bridge.

As you are undoubtedly aware, this office has been working with the Oregon State Highway Department regarding the proposed clearances for the I-205 Bridge. The preliminary discussions were started on the basis of a clearance of 135 feet above low water which is the same as that existing at the next bridge upstream, the Bridge of the Gods at Cascade Locks. The horizontal clearance of 337 feet was based on the design required in the truss to provide the maximum clearance of 135 feet and still meet all FAA requirements for Portland International Airport located adjacent to the proposed bridge.

Porter

As the result of our discussions with all of the Port organizations up river from Vancouver, the towboat and steamship operators, we have started discussions with FAA and the Oregon State Highway Department regarding a moderate increase of the clearances, however not nearly to the extent suggested by Mr. Volpentest.

As the result of our investigation and soon to be forthcoming recommendation, we expect that the application for a permit by the Oregon State Highway Department will meet with approval of both the aviation and navigation interests of the region. ?

copies

REFERRED TO
Morgan - Merchant
By Asst. State Hwy. Engr.
11-2-66

NOTED
F. B. KLABOE

If there are any further questions regarding this matter, we would be happy to discuss them with you.

Very truly yours,

THE PORT OF PORTLAND
ORIGINAL SIGNED BY
GEORGE M. BALDWIN
GEORGE M. BALDWIN
General Manager

cc: Port of Camas-Washougal
Oregon State Highway Department
Mr. Herbert West, I.E.W.A. - Walla Walla

RECEIVED
NOV 1 1966
OFFICE OF
STATE HIGHWAY ENGINEER

RECEIVED
NOV 1 - 1966
OREGON
STATE HIGHWAY COMMISSION

PORT OF CAMAS-WASHOUGAL

PHONE AC 206 835-5646 P. O. BOX 1017 CAMAS, WASHINGTON 98607

COMMISSIONERS
D. J. McDOUGALL, M. D.
JOSEPH A. GAINES
M. L. SCHWARY

21 October 1966

Washington State Highway Dept.
4200 Main Street
Vancouver, Washington

Attention: William B. Bully, District Engineer

Dear Mr. Bully:

The Port of Camas-Washougal, while attending the 33rd annual convention of the Inland Empire Waterways Association on 17 October, proposed a resolution regarding the verticle and horizontal clearances of the proposed Interstate 205 Columbia River bridge.

The present information regarding these clearances states that a verticle clearance above mean low water of 135 feet and a horizontal clearance between spans of 337 feet has been proposed. Our Port and other port districts and interested parties east of the Vancouver area along the Columbia River are of the opinion that to limit the verticle distance of this type of span and leave it at the suggested heighth would cause a severe limitation on future commercial waterborn transportation east of that span. Our suggestion, which has been passed in the form of a resolution by the I.E.W.A. is that the verticle clearance be set at a minimum of 178 feet above mean low water and a horizontal distance between spans at a minimum of 500 feet.

The barge companies have indicated a strong desire for the same recommendations which we have mentioned above. It is our feeling that once the Bonneville lock is modified or rebuilt to handle deep draft vessels, we do not wish to see a need to go back and redesign existing bridges to accommodate river commerce.

We would appreciate your comments and recommendations regarding this subject.

[illegible]

Sincerely,

William R. Volpentest

William R. Volpentest

WRV:dg
cc: George M. Baldwin, Manager, Port of Portland

WILLIAM R. VOLPENTEST, MANAGER

Commissioners
[illegible] SOMERS
President
[illegible] HIRSCH
Vice-President
[illegible] JACOBSEN
Secretary
[illegible] CALDWELL
Treasurer
[illegible] DRAKE
RAYMOND M. KELL
DENNIS J. LINDSAY
[illegible] RUSSELL
ROBERT B. WILSON

General Manager
GEORGE M. BALDWIN

Ass't General Manager
[illegible]
Mgr., Aviation Dept.
[illegible]
Mgr., Industrial Development Dept.
[illegible] ARNOLD, JR.
Mgr., Marine Dept.
A. J. HEINEMAN
Comptroller
C. W. BAUER
Mgr., Research and Planning Dept.
W. S. DIRKER
Chief Engineer
R. F. DOW
Mgr., Public Affairs Dept.
W. G. PROCTOR

Swan Island, P.O. Box 3529, Portland, Oregon 97208
Telephone 503-285-5271

In reply refer to:
ENG-ERA

September 20, 1966

Routing
Morgan
Decker
Bond
Barbee
Walker
Glenn
Swan
Port E
Moreland
Trout
Scott
Willis
Litchfield
Olsen

RECEIVED
SEP [illegible] 1966
CONSTRUCTION DIVISION

Oregon State Highway Department
State Highway Building
Salem, Oregon 97210

Attention: Mr. Forrest Cooper

Gentlemen:

SUBJECT: I-205/Columbia River Bridge

Enclosed is a copy of the Port's minutes of the subject meeting held at the Port offices on September 6, 1966, between the Oregon State Highway Department representatives, Ivan Merchant, A. E. Johnson, and A. D. Olson and Port staff members Messrs. Dow, Heineman, Smith and Arnold.

Very briefly the results of the meeting are listed as follows:

1. The main river channel clearance of 135' above mean low water, Columbia River Datum, appears to be acceptable to the shipping interests. Up-river ports have not yet been contacted in this regard.

2. The Port will call a hearing for interested parties relative to navigation requirements at the I-205 bridge. This is in accordance with previous procedures and the hearing will be called upon the request of the State Highway Department.

3. The Port of Portland requested that the I-205 bridge and southerly approaches thereto be realigned to a position at least 1500' easterly of that currently proposed.

4. The Port of Portland requested that the bridge structure be lowered the maximum possible extent over the side channel between Government Island and the south shore of the river from the clear-span (exact location to be determined) to Marine Drive, and that the Oregon approach to the bridge be lowered at Marine Drive a maximum possible amount for safety of both aircraft and freeway traffic in the vicinity of the Portland International Airport Runway 28R approach.

5. The Oregon State Highway Department can, if necessary, break grade in the bridge profile in order to conform with the 150' height limitations established by FAA, and still maintain the 135' main-channel clearance as referred to in Item No. 1 above.

6. The Oregon State Highway Department proposed plan conforms with the Federal Aviation Agency's TSO-N18 in that a 17' high vehicle on the roadway will fall beneath the approach surface of Runway 28R. It will, however, be necessary to file "Notice of Intent to Alter or Construct" with FAA for that agency's consideration.

The Port of Portland hereby reiterates Item No. 3 above and requests that the Oregon State Highway Department reroute I-205 east of Portland International Airport, relocate the proposed Columbia River bridge a minimum of 1500 feet easterly from the presently planned location, and lower the south approach and bridge structure as much as possible for the protection of the airport and for preservation of aircraft safety. The Port is responsible for and insists on the preservation of usable air space at and near Portland International Airport and we maintain that the proposed structure constitutes an encroachment on the safety of the traveling public.

Portland International Airport is considered to be extremely well situated from the standpoint of airport obstructions and aircraft operation. We feel this condition is a direct result of farsighted planning and continued cooperation by and between everyone concerned. The airport is a recognized and growing transportation center, vital to the needs of the entire Northwest traveling public. This airport is growing at a rate above the national average and is expected to triple in passenger volume in the next six years. With the ever-increasing passenger capacities of commercial aircraft, which will be climaxed in 1969 by the 500-passenger Boeing 747, and in about 1974 by the supersonic transport, it is essential that we do everything in our power to protect its operational safety.

Because the integrity of this facility has been preserved to a great extent by the consideration and cooperation of all public agencies in this area, we are, by copy of this letter, taking the liberty of calling this matter to the attention of the Multnomah County Board of Commissioners. We respectfully request that body to make a formal appeal to the Oregon State Highway Department in behalf of The Port of Portland, for reconsideration of the I-205 bridge location and that the I-205 alignment be revised as discussed above.

It is our understanding that the County Road Department would favorably consider rerouting of Marine Drive, in the vicinity of the I-205 bridge structure, along the foot of the Columbia River levee for purposes of lowering the structural height of the bridge and its approach across the approach zone of Runway 28R. We suggest that the Multnomah County Board of Commissioners also confirm their position in this matter.

The Port of Portland recognizes the many ramifications of this request and of favorable consideration thereof. We do not feel, however, that we can over-emphasize the regional importance of the airport, the permanence of such a facility, the Port's obligation to the public for preservation of its safety, and the fact that the I-205 structure is, at this time, still in a "drawing board" stage. Further, it is our feeling that airport automobile traffic will make up a substantial portion of the I-205 traffic and that the freeway will, in effect, be a supporting facility providing service to a major transportation complex.

Finally, The Port of Portland is obligated by FAA Grant Agreements to protect the approaches to the federally funded runways. We repeat that although the planned bridge structure conforms with existing FAA criteria, this criteria is a minimum and must be considered only as such. Historically, the Port's policy has always been to do its utmost in providing an operationally safe airport. It is our belief that the bridge in its presently planned location and at its presently planned height would constitute a definite hazard to aircraft operations at Portland International Airport.

We urge your favorable consideration of this request. Continued safe operation of the airport dictates our action in this regard and if we can provide information which may assist you in your reconsideration of the matter, please do not hesitate to call.

Very truly yours,

THE PORT OF PORTLAND

GEORGE M. BALDWIN
General Manager

cc Multnomah County Board of Commissioners
Mr. P. C. Northrop, County Roadmaster
Mr. Ivan Merchant, OSHD Salem
Mr. A. D. Olson " "
Mr. A. E. Johnson " Portland

September 12, 1966

TO: FILE

FROM: E. R. ARNOLD

SUBJECT: I-205/COLUMBIA RIVER BRIDGE

At a meeting on 9-6-66 in this office, the subject matter was discussed with Highway Department representatives Ivan Merchant, Al Johnson and Adrian Olson; by Messrs. Dow, Heineman, Smith and Arnold of the Port.

The subject of main river-channel clearance was reviewed with respect to procedures to be followed at future hearings for navigation interests. Mr. Heineman indicated that the Navy should definitely be invited but whether or not they would attend the hearing and be heard is not definite. Invitations should also be sent to the Corps of Engineers, to the upper river ports, the Port of Vancouver, the Columbia River Towboat Association and other towboat interests, Columbia River Pilots and any shipping interests using this stretch of the river.

Mr. Heineman has contacted most of these interests to date with respect to the I-205 bridge, with the exception of the Port Authorities. In general, reaction to the bridge and the proposed clearances has been favorable and it was decided that the ports should be invited to an informal discussion of this matter prior to a formal public hearing.

The proposed 135' main channel clearance has been discussed with respect to navigational interests as maximum clearance during low water. Inasmuch as river traffic would not occur during river stages above 20', Mr. Heineman's approach has been a minimum clearance of 115' to 120' which will handle all shipping vessels except the large Hawaiian Trader container ships.

Mr. Heineman recommended a main channel clear width between piers of 350' minimum. Mr. Merchant stated that the Corps of Engineers has indicated 300' will be satisfactory, but if the towboat interests insist on greater width, the OSHD could, as a concession, increase the clear width to 350'. The towboat interests have also indicated that a timber rubbing strip on the main bridge piers should also be provided, and Mr. Merchant indicated that this could be accomplished.

With respect to the side channel, Mr. Heineman stated that the construction companies would not be able to clear the proposed 57' clearance with their pile driving rigs and would therefore have to go around Government Island to get into the side channel for pile work. Only one commercial operator uses this channel and the proposed clearance will present no problem to him. Sail boats are not directly involved since they sail mainly in the main channel of the river.

Regarding conformance with FAA and airport criteria the Port acknowledged that the structure is in conformance with TSO-N18 but submitted that the bridge structure and the fill south of Marine Drive still create a potential hazard to aircraft. The structure is felt to be too high for safety and the location is too near to the runway end. The Port therefore requested that the bridge and fill be rerouted to a location which should be a minimum of 1500' easterly of the planned location and also be lowered to the maximum practical limits.

The Port's request and the reasons for it were discussed at length during which the Highway Department contended that the cost of relocating the structure eastward would be prohibitive. The Port further explained its responsibility to protect the runway approaches because of FAA funds which have been utilized for development of the airport facility, and its desire to maintain a safe airport for the traveling public. The relative importance of the airport to the entire community was also stressed. Mr. Merchant indicated that unless a monetary value could be established for purposes of comparative justification, consideration of realignment of the bridge would be almost impossible. It was stated, however, that the County Commissioners had chosen the current bridge location in preference to more easterly alternate locations, and that if the County Commissioners would officially request the bridge to be moved eastward, the State would have more reason to consider the Port's request.

The possibility of lowering the bridge structure and the earth fill in the vicinity of the approach zone was also discussed. It was determined that the main clearance span over the side river channel could be moved one pier north. The State was advised that the County has verbally approved rerouting Marine Drive along the foot of the dike to enable lowering the south bridge approach, and it was determined that the approach could be lowered some 17' at Marine Drive. By shifting the clear span north, a more acceptable slope of the south bridge ramp could be developed for the lower structure and fill at Marine Drive.

The State Highway Department is to investigate the lowering of the structure in the near future, but will await action by the Port and/or the County Commissioners with respect to relocating the structure eastward. Plans are moving forward, however, to hold a public hearing regarding river clearances in the next few weeks. This hearing will be called by the Port and held in the Port's board room.

ERA/mb

cc Messrs. Merchant, Johnson & Olson

8705

Routing

1 Morgan M
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Bond
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Walker
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Swan

E
Morelock
Trout
Scott
Wills
Litchfield
Olson a.o.

RECEIVED
F. B. KLABOE
OCT 25 1966
CONSTRUCTION DIVISION

In reply refer to:

Swan Island, P.O. Box 3529, Portland, Oregon 97208
Telephone 503-285-5271

Commissioners
HOWARD B. SOMERS
*President*
HAROLD S. HIRSCH
*Vice-President*
ERLING E. JACOBSEN
*Secretary*
LEE E. CALDWELL
*Treasurer*
DONALD G. DRAKE
RAYMOND M. KELL
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LEW S. RUSSELL
ROBERT B. WILSON

*General Manager*
GEORGE M. BALDWIN

*Ass't General Manager*
R. A. NEUMEISTER
*Mgr., Aviation Dept.*
J. V. FRYBERGER
*Mgr., Industrial Development Dept.*
L. E. ARNOLD, JR.
*Mgr., Marine Dept.*
A. J. HEINEMAN
*Comptroller*
E. W. BAUER
*Mgr., Research and Planning Dept.*
W. S. DIRKER
*Chief Engineer*
R. F. DOW
*Mgr., Public Affairs Dept.*
W. G. PROCTOR

October 21, 1966

REFERRED TO
A. Olson
By Construction Engineer

Mr. F. B. Klaboe
Assistant State Highway Engineer
Oregon State Highway Department
Salem, Oregon

Dear Mr. Klaboe:

Thank you for your letter of October 19 in reply to The Port of Portland's letter of September 20 concerning the Port's request to move the proposed I-205 Columbia River bridge approximately 1500 feet to the east.

As we understand the situation, the requested relocation would put the bridge in the approximate location originally proposed by the Highway Department. Unfortunately, over a period of considerable time, the alignment has been moved further to the west and closer to the airport. When the Port of Portland was consulted on the new alignment it had reached a location which the Port feels is unacceptable and contrary to the Port's policy of providing the best possible safety features for the present and future traveling public at Portland International Airport.

We recognize that your present proposed location is in general conformance with the Federal Aviation Agency's minimum requirements which are based on the present equipment and flight procedures. It is imperative that the words "minimum" and "present" be emphasized. With regard to present standards we wish to point out that the airline manufacturers have several new series of aircraft on the drawing boards scheduled for construction and operation prior to 1980. Among these are the Boeing 747, the SST, and a commercial cargo and passenger version of the C-5A with a passenger capacity of 800 or more. While it is hopefully planned that the SST will prove to be operational within present airport standards, there is no assurance that this will in actuality

NOTED
R. L. PORTER

REFERRED TO
Cooper - Porter - Elov. - Morgan - Merchant - [illegible] - Johnson - BPR
By Asst. State Hwy. Engr.

be fact. There is even less likelihood that subsequent model aircraft will adapt to existing criteria. Therefore, the aviation industry is not able to accurately predict what type of plane will be flying within the next ten to fifteen years nor precisely what its operational requirements will be.

We have the greatest respect for the Federal Aviation Agency and their requirements and standards. FAA does not, however, have either the responsibility to forecast future requirements or the authority to enforce that agency's projected requirements. The Port of Portland, as airport owner and operator, is therefore forced to assume the responsibility of providing for the future, with no assurance as to what the standards and requirements will be ten to fifteen years from now.

At the same time local interests charged with the responsibility for highway traffic projections and vehicle transportation in the Portland-metropolitan area predict that still another Columbia River bridge will be required within the next ten to fifteen years as close as possible to the west boundary of Portland International Airport.

I am sure that the Oregon State Highway Department, in its role of responsibility for providing the major ground transportation facility in the state of Oregon, can appreciate the position that the Port of Portland finds itself in, trying to provide and preserve the largest single transportation facility between Seattle and San Francisco -- a facility used by the entire state of Oregon and southern Washington -- with ever increasing encroachments, and the unpredictability of even the immediate future's requirements.

Legally it would appear quite difficult to prove one location for a proposed bridge to be measurably more hazardous than another. On the other hand, good judgement and common sense makes it mandatory that The Port of Portland resist to the maximum extent any further encroachment of its approach zones by permanent structures which in any way would jeopardize our future flexibility, operation or safety standards.

We will transmit a copy of this letter to the Federal Aviation Agency as part of the Port's official statement objecting in the strongest manner possible to the bridge in the location you propose. At the same time, the Port fully realizes your problems with the Bureau of Public Roads and we stand ready at any time to meet with the Bureau and state our case in your behalf. We believe that both the Federal Aviation Agency and the Bureau of Public Roads will recognize the importance and the validity of our plea, and under these circumstances will find that the return to the approximate original alignment as requested by The Port is not only desirable but mandatory.

Very truly yours,

THE PORT OF PORTLAND

for GEORGE M. BALDWIN
General Manager

cc: Federal Aviation Agency - Seattle
(To be submitted with the Port's brief)
Multnomah County Board of Commissioners
Mr. Paul Northrop, Multnomah County Roadmaster

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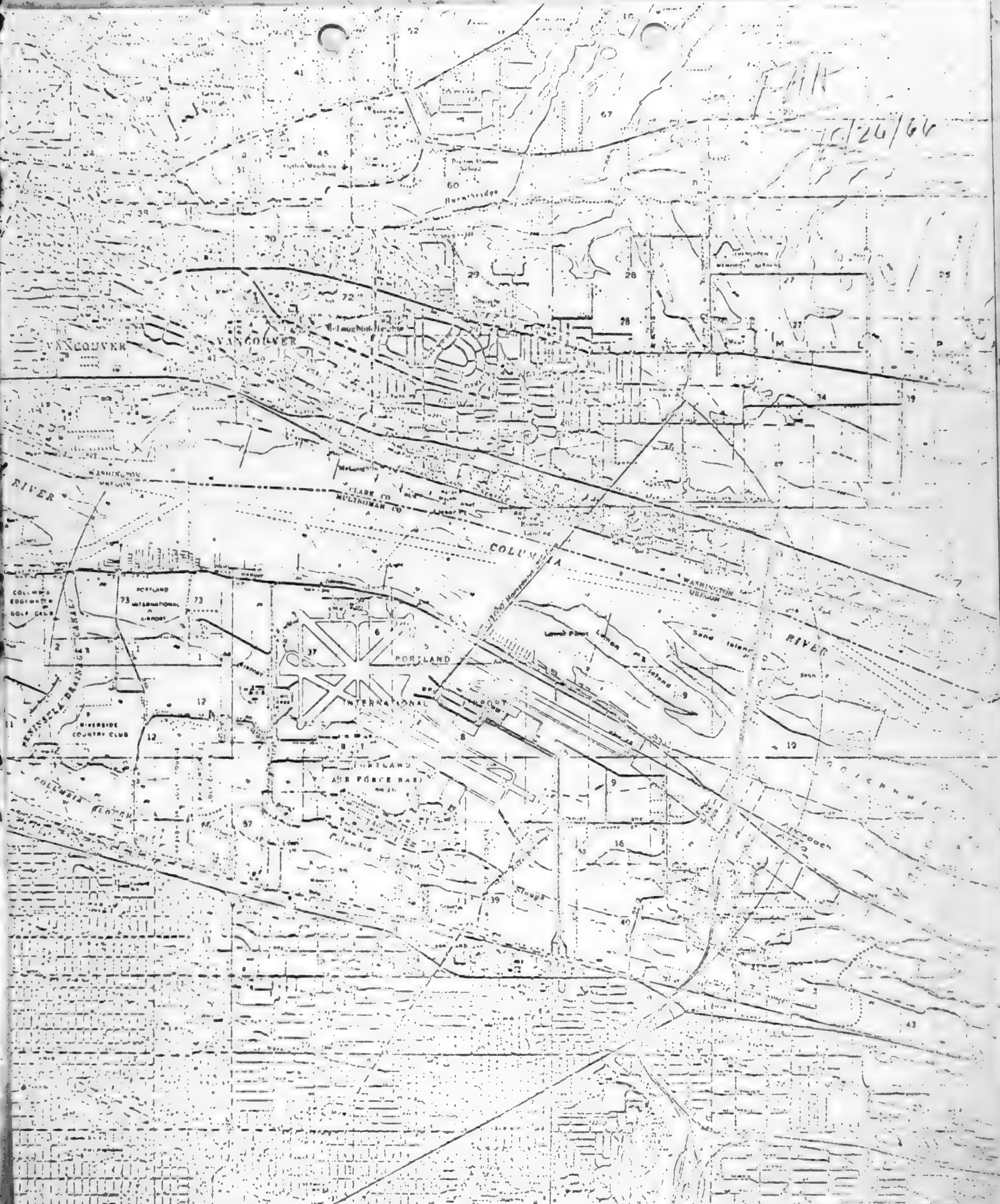
OCT 24 1966
OFFICE OF
STATE HIGHWAY ENGINEER

RECEIVED
OCT 24 1966
OREGON
STATE HIGHWAY COMMISSION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WASHINGTON
RIVER
COLUMBIA
RIVER
CLARK CO
MULTNOMAH CO
WASHINGTON
OREGON
PORTLAND INTERNATIONAL AIRPORT
PORTLAND
INTERNATIONAL
AIRPORT
PORTLAND
AIR FORCE BASE
RIVERSIDE COUNTRY CLUB
COLUMBIA EDGEWATER GOLF CLUB
PENINSULA DRAINAGE CANAL
COLUMBIA SLOUGH
Sand Island
Burnthridge

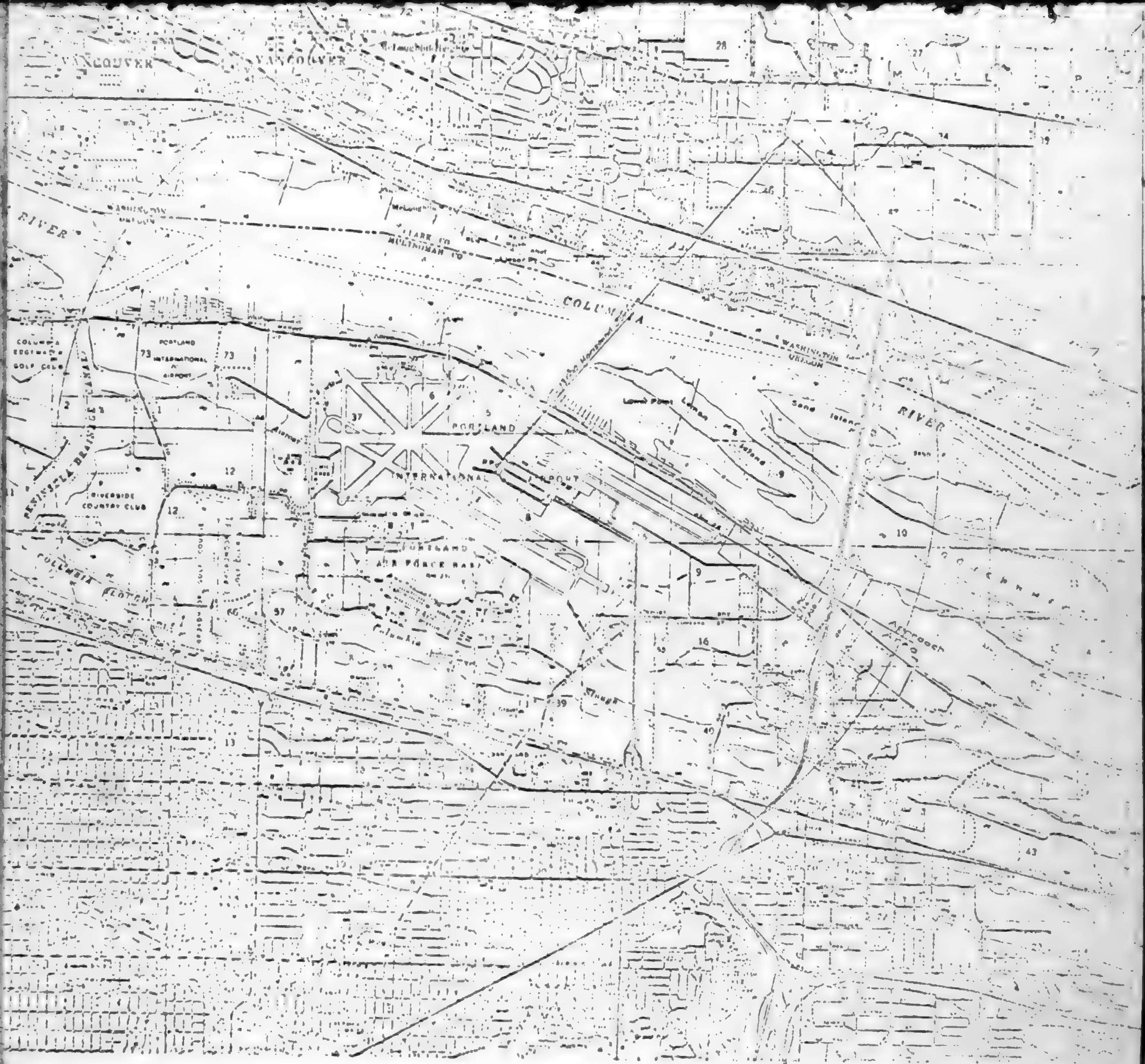
FHK
10/26/66

SKETCH MAP SUPPORTING FINDING OF PUBLIC INTEREST AT PORTLAND INTERNATIONAL AIRPORT
Multnomah County, Portland, Oregon

Airport Elevation: 25.' Freeway Elevation: 71.'

Approach elev. 59' A.

We concur that the new highway or highway improvement will result in clearances adequate for safe movement of air and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CLARK CO.
MULTNOMAH CO.
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RIVER
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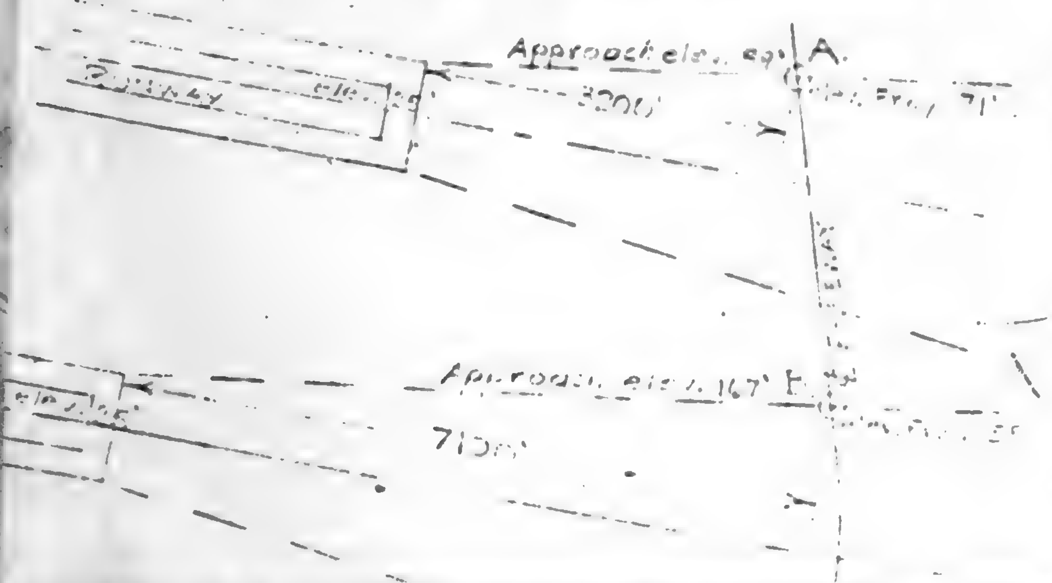
PORTLAND INTERNATIONAL AIRPORT
PORTLAND
INTERNATIONAL
AIRPORT
RIVERSIDE COUNTRY CLUB
PORTLAND AIR FORCE BASE
COLUMBIA SLOUGH
Sand Island
Approach

SKETCH MAP SUPPORTING FINDING OF PUBLIC INTEREST AT PORTLAND INTERNATIONAL AIRPORT

Multnomah County, Portland, Oregon

Airport Elevation: 25'    Freeway Elevation: 71'


Approach elev. 89' A.
Runway elev. 25'
3200'
Fwy. Elev. 71'
Approach elev. 167' B.
elev. 25'
7150'

We concur that the new highway or highway improvement will result in clearances adequate for safe movement of air and highway traffic and the proposed project is in the public interest.

(Aeronautics Official)    Date

(State Highway Dept.)    Date

(Bureau of Public Roads)    Date

205

FORM 2-125X 50M 7-66

COMMISSIONERS
GLENN L. JACKSON, CHAIRMAN
MEDFORD
KENNETH N. FRIDLEY, MEMBER
WASCO
DAVID B. SIMPSON, MEMBER
PORTLAND

STATE OF OREGON
STATE HIGHWAY DEPARTMENT
SALEM 97310

Routing
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Pease E
Morelock
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Scott
Wills
Litchfield
/ Olson

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OCT 20 1966
CONSTRUCTION
DIVISION

October 19, 1966

Mr. George M. Baldwin
General Manager
The Port of Portland
Post Office Box 3529
Portland, Oregon 97208

Dear Mr. Baldwin:

On September 26 I advised you that we would communicate further with you concerning your proposal to move I-205 easterly about 1,500 feet near the upper end of the airport property.

We have reanalyzed our proposal as to its conformance with the Federal Aviation Agency requirements and again find that our design appears to be in substantial agreement with the minimum requirements. While we do not wish to construct any facility which would in any way pose a hazard to the air traffic or the motorist, we have been unable to secure any information with which we can hope to convince the Bureau of Public Roads that the shift in alignment is desirable.

As you know, we have forwarded our application to the FAA and have received from them a notice that comments concerning our proposal will be received prior to November 14, 1966. Lacking any substantial reason, we feel that we must await the results of the FAA investigation before we can proceed any further with this matter.

Very truly yours,

Forrest Cooper
State Highway Engineer

By ORIGINAL SIGNED BY
F. B. KLABOE

F. B. Klaboe
Assistant State Highway Engineer

bc: Forrest Cooper
R. L. Porter
Tom Edwards
Victor D. Wolfe (4139)
Ivan Merchant
Adrian Olson
A. E. Johnson

FBK:srb

cc: Federal Aviation Agency, Seattle Area Office
Multnomah County Board of Commissioners
Mr. Paul Northrop

FORM E-123X 50M 7-65 891

RECEIVED

COMMISSIONERS
GLENN L. JACKSON, CHAIRMAN
MEDFORD
KENNETH N. FRIDLEY, MEMBER
WASCO
DAVID B. SIMPSON, MEMBER
PORTLAND

Cou l
R/w
EPF

Coil R Br.

Porter

STATE OF OREGON
STATE HIGHWAY DEPARTMENT
SALEM 97310

September 16, 1966

Federal Aviation Agency
7300 Perimeter Road
Boeing Field
Seattle 8, Washington

Attention: Chief, Air Traffic Division

Gentlemen:

Enclosed are two copies of the "Notice of Proposed Construction or Alteration" for the Interstate 205 Bridge over the Columbia River. This lies a short distance east of the Portland International Airport.

We are in the initial design stage on this facility and, until recently, believed that we could build within the regulations set up under Part 77, "Objects Affecting Navigable Airspace", but found that we were using an obsolete Airport Reference Point.

The revised reference point puts the 13,000-foot radius horizontal surface in such a position that it is impossible to build anything on the Washington side of the river which would not conflict with the control surface since the existing Highway 830 (Lewis and Clark Highway) is within this area and above the control elevation. Considering the position of our conflict, relative to the airport and to the existing ground surfaces, we hope that this will not be found objectionable.

As exhibits we enclose a 1"-2000-foot scale map of the surrounding area, a 1"-200-foot map of the approximate location, and a 1"-200-foot horizontal scale and 1"-20-foot vertical scale profile of the proposed line. Also enclosed is a set of preliminary bridge layout plans. Please note that the profile indicates possible lines both over and under the Lewis and Clark Highway in Washington. Since laying this out we have been advised that going under that highway appears unfeasible due to ground water problems among other things. The bridge plans were therefore laid out on the higher grade line.

Your early consideration and comments on the acceptability of this plan will be appreciated. If you have any questions please contact me.

Very truly yours,

Forrest Cooper
State Highway Engineer

By Adrian D. Olson
A.D. Olson
Urban Engineer

Attachments
ADO:jr

cc: F.B. Klaboe

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FORM K-123X 50M
AUG 24 1966
FOR FILING

COMMISSIONERS
GLENN L. JACKSON, CHAIRMAN
MEDFORD
KENNETH N. FRIDLEY, MEMBER
WASCO
DAVID B. SIMPSON, MEMBER
PORTLAND

STATE OF OREGON
STATE HIGHWAY DEPARTMENT
SALEM 97310

August 23, 1966

The Port of Portland
Swan Island
P. O. Box 3529
Portland, Oregon 97208

**Attention:** Mr. Robert F. Dow
Chief Engineer

Subject: Columbia River Bridge
Interstate 205
Bridge No. 9555

Your Ref.: ENG-LRA

Gentlemen:

At the informal meeting held in your conference room on August 3, 1966, it was agreed that the State would prepare a preliminary elevation of the proposed bridge across the Columbia River, which elevation would indicate all clearances for navigation and air obstructions.

I am enclosing 2 prints each of Sheets 1 and 2 of Drawings dated August 11, 1966, indicating our preliminary proposal for the structure from beginning station at the north end of 24+40 to the end station southerly of N.E. Marine Drive of 119+75. It must be understood that except for the navigation clearances and grade lines, that span arrangements as indicated on this drawing are preliminary only and subject to change. The grade line diagram is the same grade line that was discussed in our August 3rd meeting and as indicated on Sheet No. 1, proposes a basic vertical navigation clearance of 135' above mean low water and with a channel clearance of 300'+ horizontal. Vertical clearances for pleasure craft on the southerly channel would be a minimum of 57' above low mean water and in excess of 160' horizontal clearance. The drawings also indicate the location of the airport approach surface as located by a 50:1 glide angle. The horizontal surface at elevation 175 and extending outward on a 20:1 slope is indicated on Sheet No. 1. The airport obstruction clearances are those permitted by the most recent FAA regulations and are all that we are able to furnish.

NOTED
TOM EDWARDS

From the publication "Bridges over Navigable Waters of the United States", Part 4, the Pacific Coast published in 1961 by the United States Army Corps of Engineers, considerable variations in clearances are observed. The clearances for the next four crossings of the Columbia River upstream are:

| | | | | | |
|---|---|---|---|---|---|
| Cascade Locks (Hwy.) | Mile 148.3 | Fixed Br. | 284' H. | 135' | V. |
| Hood River (Hwy.) | 169.8 | Vert. Lift | 246'<br>246' | 148'<br>67' | Open<br>Closed |
| The Dalles (Hwy.) | 191.4 | Fixed | 250' | 100' | |
| The Dalles (R.R.) | 200.2 | Vert. Lift | 300'<br>300' | 79'<br>20' | Open<br>Closed |

From the above, the 135' vertical clearance would control to The Dalles and the 79' of the Oregon Trunk R.R. Bridge for the reach immediately above The Dalles. Because of the channel depths to Bonneville, difficulty of traversing the Bonneville Locks and 135' clearance at Cascade Locks, the State believes the 135' vertical clearance proposed for the I-205 bridge to be sufficient.

I am enclosing one copy each of eleven sheets of ship height data prepared in 1960 for commercial vessels entering the Columbia River at Astoria. This may be of some use to you in your research into the vertical clearances required for navigation.

It is our desire to have a general meeting with the navigation interests, the Corps of Engineers and the Port of Vancouver at the earliest possible time. Will you please examine the proposed layout on the enclosed drawing and advise us as to your thoughts on the navigation clearances and clearances for air navigation.

Very truly yours,

Ivan D. Merchant
Bridge Engineer

R
AUG 2 4 1966
STATE HIGHWAY ENGINEER

IDM:mb
Encls.
cc: Tom Edwards
A. E. Johnson
F. D. Morgan

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# OREGON STATE HIGHWAY DEPARTMENT

INTER-DEPARTMENT CORRESPONDENCE

Portland, Oregon 97213
August 16, 1966

To:
Mr. Ivan D. Merchant
Bridge Engineer
State Highway Building
Salem, Oregon 97310

SUBJECT: East Portland Freeway
Prefix: 626-1909

Enclosed is a copy of a letter from Mr. Robert F. Dow, Chief Engineer, Port of Portland, regarding the location of the subject highway east of the Portland International Airport. Mr. Dow refers to our meeting of August 3, 1966 with the Port of Portland staff, and the understanding that you are to submit a revised plan and profile indicating bridge vertical clearances, et cetera.

Mr. Dow also indicates that the Port has reconsidered our alignment and fill section in the vicinity of Marine Drive, and they are asking that serious consideration be given to moving the alignment eastward. This request concerns the idea that the Port staff mentioned at our meeting; namely, that the fill section immediately south of Marine Drive, even though not encroaching on the 50:1 glide angle, would present a psycological barrier to an incoming pilot. You will remember that we discussed at that time reducing the height of this fill and approaching the top of the dike, but recognised that this would result in an impaired vertical clearance over the south channel. If such an impaired clearance were acceptable to the Port of Portland, such a measure would involve the relocation of Marine Drive from the top of the dike to the lower area immediately south of the dike.

Sometime ago, this office had a tentative line which was about 800 or 900 feet farther east at the crossing of Marine Drive, and met the State of Washington's requirements on the northerly side of the river. It is estimated that this line would involve approximately 850 feet additional structure at an additional cost in excess of $2 million.

It is rather difficult to determine how much of a barrier the proposed fill section at Marine Drive would actually present to a pilot, and it is believed that economics would prevent moving the line back to the one originally considered, as mentioned above. A slight shift of the line may be acceptable to the Port of Portland, and it is recommended that this be investigated. For information of the recipients of this letter, I am attaching a copy of the latest alignment which was furnished the State of Washington as an acceptable line.

On August 12, I met with Mr. W. A. Bulley, District Engineer, and Mr. Tom Gray, Location Engineer, Washington Department of Highways, and advised them of our proposed change in grade line and our proposed contact with the Port of Portland and the Corps of Engineers. I have received a letter from Mr. Bulley, a copy of which is enclosed, indicating that they have assigned their section of I-205 to a consulting engineering firm, and Mr. Bulley has indicated that they are holding up their operations pending a decision on the grade line.

Mr. Bulley also refers to the preparation of an agreement between the State of Oregon and the State of Washington pertaining to the construction and design of the bridge across the Columbia River. He has previously inquired as to the preparation of such an agreement. After consultation with Mr. Tom Edwards, I informed Mr. Bulley that it would be at least 60 days before such an agreement would be ready. It is to be noted that Mr. Bulley requested that the agreement be consummated prior to our engaging a consultant, if possible.

Mr. Bulley is desirous of setting up periodic meetings between engineers acting as liaisons for Oregon and Washington for the coordination of the work and transfer of pertinent information, and hopes that such meetings would be a minimum of once a month. It was indicated that Mr. Gray will contact Mr. Barbee further in this regard.

Original Signed by A. E. Johnson

A. E. Johnson
Metropolitan Engineer

AEJ:sh

Enclosures

cc F. B. Klaboe (w/encs)
F. D. Morgan (w/encs)

STATE OF WASHINGTON
DANIEL J. EVANS, GOVERNOR

1889

**WASHINGTON**
**STATE HIGHWAY COMMISSION**
**DEPARTMENT OF HIGHWAYS**
OFFICE OF DISTRICT ENGINEER
4200 MAIN STREET
**VANCOUVER, WASHINGTON**

August 12, 1966

Mr. A. L. Johnson
Division Engineer
Metropolitan Division, State of Oregon
Department of Highways
Salem, Oregon

I-205 L-2096

Dear Sir:

This letter will confirm the results of our discussion concerning coordination of the design of Interstate route 205. The meeting was held in this office on August 12th. We wish to extend to you our appreciation for your bringing with you the information concerning a possible grade change of the Columbia River Bridge due to height restrictions which are in force as a result of the close proximity of the bridge to the Portland International Airport.

As we indicated in our discussion, our schedule for preparing the plans, holding the necessary public hearings, and actual construction of this facility is very tight. We have retained a Consulting Engineering Firm who is presently proceeding with the preliminary planning for the entire facility and he is operating in accordance with a Critical Path Schedule and his progress is reviewed periodically by this office. For this reason it appears very desirable that we establish periodic meetings to provide for the coordination of the work and transfer of pertinent information. Mr. Tom Gray will be the liaison man for this office and you indicated that Mr. J. Barbee has been designated as liaison for the Oregon Highway Department. Mr. Gray will proceed to make the arrangements with Mr. Barbee, with copy to your office, of the appropriate meeting dates. I would suggest that the minimum communication would be a monthly exchange of status reports.

METROPOLITAN [illegible]
RECEIVED
AUG 16 1966

It is understood from our discussion that your office will proceed with the preparation of an agreement between the State of Oregon and the State of Washington for the design and construction of the bridge across the Columbia River on Interstate 205. You indicated that the preparation of an agreement will very likely take approximately 60 days and that the architectural study and design of the structure will be performed by a Consulting Engineer. We suggest that, if possible, the agreement should be consummated prior to the engagement of a consultant firm.

We appreciate the cooperation which you have extended us in providing us with the answers to our questions and we trust that through good liaison we can provide for a quick exchange of any information which may be pertinent and of interest to the other party. In this regard we will hope to hear from you as soon as you have received a decision from the Corps of Engineers concerning the vertical clearance which will be required for the bridge.

Very truly yours,

WA Bulley

W. A. BULLEY, P.E.
District Engineer

WAB:am

c.c. - Mr. George Andrews
Mr. Val G. Rinehart

Commissioners
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*President*
LEL E. CALDWELL
*Vice-President*
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E. W. BAUER
*Mgr., Research and Planning*
W. S. DIRKER
*Chief Engineer*
R. F. DOW
*Mgr., Public Information*
W. G. PROCTOR

THE PORT OF PORTLAND
Swan Island, P.O. Box 3529, Portland, Oregon 97208
Telephone 503-285-5271

In reply refer to:
**ENG-ERA**

August 12, 1966

Mr. A. E. Johnson
Metropolitan Engineer
Oregon State Highway Department
5821 N. E. Glisan Street
Portland, Oregon 97213

Dear Mr. Johnson:

SUBJECT: I-205 Location East of Portland International Airport

The subject plan and profile submitted with your letter dated July 13, 1966, has been reviewed.

As shown on the profile, the 17 ft. clearance line will not extend above the Federal Aviation Agency minimum approach surface criteria of 50:1, but, as we have previously discussed, will extend above the 100:1 surface and the horizontal surface 150 ft. above the established airport elevation.

From the meeting in this office on August 3, 1966, attended by you and Messrs. Merchant and Versteeg of the Highway Department and membersof the Port staff, our understanding is that you will resubmit a revised plan and profile which will more nearly comply with all FAA minimums. The revised profiles will also more clearly indicate bridge structural concepts and clearances over the various portions of Columbia River.

We have reviewed the matter more completely since our meeting, and now feel increasing concern for the safety of aircraft using Runway 28R. As a result we would like to request at this point that serious consideration be given to moving the alignment eastward in the area of the Marine Drive crossing to reduce the effective height of the structure with respect to the runway approach, and to move the physical barrier effect as far from the runway end as is practically possible. As previously discussed, FAA criteria is a minimum and should be exceeded when possible.

METROPOLITAN [illegible]
RECEIVED
AUG 16 [illegible]

The Port feels obligated to make every effort to protect its runway approaches to insure the safety of the traveling public. We will appreciate consideration of this matter and hope the revised plan and profile will reflect the change.

Thank you for your continued cooperative efforts in planning this facility and for giving us an opportunity to discuss it with you.

Very truly yours,

THE PORT OF PORTLAND

ROBERT F. DOW
Chief Engineer

ERA/mb

cc A. D. Olson, OSHD
I. Merchant "

RECEIVED
JUL 25 1966

FOR FILING

OREGON STATE HIGHWAY DEPARTMENT

INTER-DEPARTMENT CORRESPONDENCE

Salem, Oregon
July 22, 1966

SUBJECT: Columbia River Crossing
East Portland Freeway
I-205

To:

Mr. Ivan Merchant
Bridge Engineer
BUILDING

Enclosed are two sets of maps and profiles for use in discussing the proposed Columbia River crossing with the Corps of Engineers.

Indicated on the small (1"=2000') sketch is the F.A.A. clearance zone, a plane surface 150 feet above the airport and 13,000 feet from the airport reference point. This is also shown on the 1"=200' map and on the two different profiles which are included.

The high profile uses the same clearance as that available at the Interstate bridge at Vancouver and as indicated encroaches into the obstruction zone for a distance of 3,200 feet and will extend above the control elevation as much as 40 feet.

To avoid this encroachment, we have proposed the lower grade line which is controlled by the F.A.A. criterion as shown. This will give approximately elevation 136 for bottom of beam at the south edge of the channel, assuming a 15-foot depth of beam. This is within a foot of the clearance originally given us for the control elevation for design of this facility.

Please discuss this with the Corps of Engineers at your earliest convenience so that we may contact the F.A.A. in regard to whatever encroachment is required.

F. D. Morgan
Construction Engineer

By ADOlson
A. D. Olson
Urban Engineer

ADO:fp
Enc.
cc F. B. Klaboe
A. E. Johnson

NOTED
F. B. KLABOE

1979 Columbia R. Br. (N. Channel 890
Superstruc.) Sec. of E. Ptld. Fwy.
(Structure) #2

RECEIVED
JUL 7 - 1967
FOR FILING

UNITED STATES GOVERNMENT
*Memorandum*

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
BUREAU OF PUBLIC ROADS
477 Cottage Street NE.
Salem, Oregon 97301

DATE: June 29, 1967

In reply refer to: 08-35-EC

TO : Mr. Forrest Cooper, State Highway Engineer
Salem, Oregon

A. W. Parsons

FROM : A. W. Parsons, Division Engineer
Salem, Oregon

SUBJECT: FAI Route 205, East Portland Freeway
Washington State Line - Glisan Street Section
Columbia River Crossing

1664
1675

Mr. Klaboe's June 9, 1967 letter requested reconfirmation of our March 7, 1966 approval of the location of the Columbia River crossing on Interstate Route 205 which was based partly on the fact that consideration would be given to a more westerly alternative.

In view of the circumstances involved, the more westerly alternative may be eliminated from further consideration. We hereby reconfirm our approval of the location approximately the same as that shown at the public hearings.

7-5-67

REFERRED TO
✓Edwards - Young - [illegible] - ✓Merchant - Cox
BY ASST. STATE HWY. ENGR.
✓Johnson (Advise Bully) ✓with cc my letter

RECEIVED
13 1967
OFFICE OF
STATE HIGHWAY ENGINEER

NOTED
TOM EDWARDS

[illegible] EDWARDS

BUY U.S. SAVINGS BONDS REGULARLY ON THE PAYROLL SAVINGS PLAN

RECEIVED
JUN 12 1967
FOR FILING

June 9, 1967

1664
1675

Mr. A. W. Parsons
Division Engineer
Bureau of Public Roads
477 Cottage Street N. E.
Salem, Oregon

Dear Mr. Parsons:

Subj: Washington State Line-Glisan
Street Section
East Portland Freeway (I-205)
Multnomah County
Your Reference: 08-35-EC/711.11

Set EPF Gen

By letter of October 29, 1965, we transmitted data and requested approval of the location of Interstate 205 as shown at the public hearings in the affected communities. On February 16, 1966, data was transmitted comparing a somewhat more westerly alignment in the vicinity of Marine Drive (than that shown at the public hearing) with an alignment along 109th from the Banfield Freeway north to the river. This was in support of the general routing used at the public hearing. Your letter of March 7, 1966, approved the final location as requested by our letter of October 29, 1965.

Further study indicates that the more westerly routing at Marine Drive will interfere with the expansion of the Portland International Airport, a factor not apparent in the original studies. We find after study that a route giving the desired airport and navigation clearances places the line in approximately the same location as shown at the public hearings. Slight adjustments may be necessary to fit revised alignments in the State of Washington since the present projection is based on their controls established on the more westerly line, but no major change is anticipated.

There is no apparent difference in the effect of the two lines on the natural waterways, moorages or recreation, assuming the same navigational clearances are provided.

Your reconfirmation of the location of I-205, approximately as shown at the public hearings, is requested.

Very truly yours,

Forrest Cooper
State Highway Engineer

By

R. L. Porter
Deputy State Highway Engineer

cc Forrest Cooper
F. B. Klaboe
Victor D. Wolfe
F. D. Morgan
L. H. Young

ADO:jr jw

RECEIVED
MAY 15 1967

FORM E-30 50M [illegible]

**OREGON STATE HIGHWAY DEPARTMENT**

INTER-DEPARTMENT CORRESPONDENCE

Salem, Oregon
May 11, 1967

SUBJECT:

To: MEMO TO FILE

On this date, a meeting was held in the Hilton Hotel in Portland re the location of the Columbia River Bridge on I-205.

The Port of Portland was represented by:

| | |
|---|---|
| Dennis J. Lindsay<br>Howard B. Somers<br>Harold S. Hirsch<br>Erling E. Jacobsen | Members of the Port Commission |
| George M. Baldwin | General Manager |
| R. A. Neumeister | Asst. General Manager |

The Highway Commission was represented by:

| | |
|---|---|
| Glenn L. Jackson | Chairman |
| David B. Simpson | Member |
| Forrest Cooper | State Highway Engineer |

After a review of the various problems involved, it was proposed by Chairman Jackson that the bridge be shifted easterly along the axis of the north runway of the Portland Airport a distance of 1200 feet, with the necessary adjustments being made in the alignment of the highway to conform to this point. After considerable discussion, the staff members of the Port of Portland indicated that this was acceptable to them. The Port Commission stated that it appeared to be acceptable to them also, but they wished to discuss it with members who were not in attendance and promised a decision by May 17.

I have issued instructions to proceed with the necessary engineering and estimating work, after which the matter will be presented to the Bureau of Public Roads for its approval.

Forrest Cooper
Forrest Cooper
State Highway Engineer

Copy to
[illegible]
5-16-67

FC:fn

cc George Baldwin
A. W. Parsons
Highway Commission
R. L. Porter
Tom Edwards
F. B. Klaboe
Victor D. Wolfe
A. E. Johnson
L. W. Rulien
F. D. Morgan

RECEIVED
JUN 23 1967
FOR FILING

TOM McCALL
GOVERNOR

OFFICE OF THE GOVERNOR
STATE CAPITOL
SALEM 97310

9

June 21, 1967

Mr. Dean Vincent
Dean Vincent, Inc.
333 S. W. Park Avenue
Portland, Oregon 97205

Dear Dean:

Thank you for your June 8 letter concerning the effect of the proposed Interstate 205 Columbia River crossing on boating interests in the Government Island area.

The move as suggested, while undoubtedly being beneficial to boating interests, creates more problems than it solves. After many months of negotiation, the Highway Commission and the local governing bodies (the city and county) have agreed on a general location that we believe will satisfy the majority of people. To move the river crossing as much as one-half mile upstream would reopen the whole I-205 issue amd bring about many problems of design and service that are now generally settled.

The I-205 location has probably been one of the most difficult highway problems ever facing the State Highway Commission. It is simply impossible to find a solution that is completely acceptable to everyone affected. The Commission and the Department staff have spent many months in arriving at an adequate solution which we think will please the greatest number of people. I am fearful that should this be abandoned and major changes and adjustment inaugurated at this time, the construction of this needed freeway will be delayed and may even be impossible to construct.

If there is anything in the line of factual information or material that you desire, I know a note to the Highway Department in Salem will be given prompt attention.

Sincerely,

Governor

TM/wb

bcc: ✓Forrest Cooper
State Highway Engineer

COPY

NOT
FORREST COO

FILED
R. L. PORTER

Portland, Oregon
June 8, 1967

REFERRED TO
admin.
BY SECRETARY

State Highway Commission
Salem, Oregon

Porter

Gentlemen:

I am writing about the location of the bridge over the Columbia River for Interstate 205.

The location of the bridge presently contemplated is across the east end of Government Island. This will seriously jeopardize the finest recreational area in the Columbia River closest to the city of Portland. It offers prime boating facilities which no other area within several miles provides, and it will certainly be spoiled by running a bridge through the middle of it. Even moving the location of the bridge one-half mile to the east will be very helpful.

I feel the state has an obligation to preserve all possible natural recreational areas and this River area is used by more people than any other river area in Oregon.

Very truly yours,

D Vincent

Dean Vincent

DV:vb

RECEIVED
JUN 9 1967
OFFICE OF
STATE HIGHWAY ENGINEER

RECEIVED
JUN 9 1967
OREGON
STATE HIGHWAY COMMISSION

8705

RECEIVED
JUN 19 1967

FOR FILING

June 16, 1967

Mr. Howard Cunningham
Commodore
Portland Yacht Club
1241 N. E. Marine Drive
Portland, Oregon 97211

Dear Mr. Cunningham:

Reference is made to your June 7 letter concerning the proposed location for the bridge across the Columbia River on Interstate 205 easterly of Portland. The letter will have the attention of the Highway Commission but we have nothing more to offer at this time that was not explained at the Commission meeting on June 8.

The Commission wants to cooperate with all interests to the greatest extent possible and will do everything it can to mitigate any unfavorable situations or conditions that may develop. It is very evident, however, that it is not possible to construct a metropolitan freeway and eliminate every objection.

If you or your organization desire factual data or information, anything available will be promptly furnished at your request.

Very truly yours,

Forrest Cooper
State Highway Engineer

By

R. L. Porter
Deputy State Highway Engineer

RLP:ms
cc Forrest Cooper
Tom Edwards
F. B. Klaboe
Victor D. Wolfe
I. D. Merchant

**PORTLAND YACHT CLUB**

1241 N. E. Marine Drive
Portland, Oregon 97211

Telephone
285-1922

REFERRED TO
admin
BY SECRETARY

June 7, 1967

NOTED
R. L. PORTER

Oregon State Highway Commission
State of Oregon
Salem, Oregon

Gentlemen:

As the representative of Portland Yacht Club and it's members, I am deeply concerned with the proposed location of the I-205 bridge over the Columbia River.

Ackd.

This bridge project as presently proposed would only allow a clearance of 48' for masted ships. This is not enough height to satisfy the needs of sailboats in this area. Our club has boats that require as much as 65', so we feel that the bridge should be elevated to allow as least this much for present and future passage of,ships.

We are also concerned with the proposed location of the bridge in that it passes over the designated anchorage used by the public. The bridge and it's piers will conflict with the anchorage as the piers will restrict the flow of water through it causing additional shoaling .

It is not our desire to interfere with the formulation of plans for the highway, but to point out the needs of the public using the area with which we are both concerned.

We, as a yacht club are dedicated to the sport of yachting and thus, have supporting our mutual interest, all of the major yacht clubs in the State of Oregon.

It is our contention that the State of Oregon should first consider the important needs of the boating public by designating this anchorage as a public park and in so doing, maintain the anchorage at a depth useful to the public.

Sincerely yours,

Howard Cunningham

Howard Cunningham

Commodore

RECEIVED
JUN 13 1967
OFFICE OF
STATE HIGHWAY ENGINEER

RECEIVED
JUN 12 1967
OREGON
STATE HIGHWAY COMMISSION

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RECEIVED
JUL 27 1967
FOR FILING

6-8-67

8

# STATE HIGHWAY COMMISSION MEETING

**Delegation** Mr. R. L. Calkins, President of Columbia River Yacht Association in Portland, and others, re the construction of I-205 as it pertains to the operation of boats in the Portland area.

**Date** June 8, 1967

**Time** 11:30 a.m.

| Name | City or Town | Capacity |
|---|---|---|
| Mr. Reuben Getz (spokesman) | Portland | Col. Rv. Yacht Assoc. |
| Mr. Howard Cunningham | " | " |
| Mrs. Connie McCreedy | " | " |
| Mr. Don Wells | " | " |

Transcript of 10:30 a.m. delegation at June 8 Commission meeting. Columbia River Yachting Association re construction of I-205 as it pertains to the operation of boats in the Portland area.

MR. REUBEN GETZ: Members of the Commission and staff.

(See attached written statement.)

NOTED
F.R. KLABOE

NOTED
R. L PORTER

My name is Reuben Getz and I appear as Vice President of the Columbia River Yachting Association. I want to introduce my associates who are here with me today. First of all, Mr. Howard Cunningham, Commodore of Portland Yacht Club, whose members are among the owners of the Island known as Tri-Club Island in the Columbia River. Mr. Cunningham serves today as delegate of Tri-Club Island Corporation. Also, Mrs. Connie Macready, an active sail-boater and member of Rose City Yacht Club, another of the Club's whose membership are owners of Tri-Club Island; and Mr. Don Wells, a member of the Oregon State Marine Board.

The Columbia River Yachting Association is made up of 16 boating clubs, the majority of which are situated in the Portland area along the Columbia River. The membership of these various clubs numbers in excess of 2,000 families.

Our membership is vitally concerned with the proposed I-205 Bridge across the Columbia River. Our first concern relates to the proposed height as the bridge crosses the South channel of the River located between the Oregon shore and Government Island. Family boating in Oregon, particularly in the Portland area, has grown at a remarkable rate during the last 10 years and all indications are that this growth has only begun. As we look for additional areas of growth along the Oregon shore of the Columbia River, it seems almost certain that the principal remaining area for the growth of marinas, yacht clubs, etc., to handle the future boating population, must occur along the Oregon shore of the South channel, South of Government Island. By the same token the obvious future for the development of recreational use of the beaches for boaters lies along the South shore of Government Island facing, again, the same South channel. It is this area of the River that offers a large expanse of beaches and waters protected from the prevailing Northwest winds during the summer months, as well as the wakes of larger vessels passing in the main channel. We would like to be assured of sufficient height of the Bridge over the South channel to permit the passage of vessels into this protected area. We feel that a minimum clearance of 65 feet from the datum level is needed to permit passage of the sail boats in the area with their high masts. Without this clearance, many of the boats of the area, which, incidentally, have been increasing in average size, would not be able to use the South channel, either for marine moorage facilities or for the recreational areas offered on the South side of Government Island. With the limited speed and range of the sailboats, this presents a considerable problem since they cannot reach other areas.

Our second concern is regarding the proposed location of the Bridge as it crosses Tri-Club Island, known as Sand Island on the chart, but even more particularly, the adjoining anchorage area between the Island and Government Island as well as Lemon Island. A number of years ago the members of three of the yacht clubs of the area purchased Tri-Club Island with the ownership to reside directly with the individual members. The purpose of the purchase was to keep the lagoon behind the Island open to boaters rather than to commercial development. The area has been expressly made available to all boaters in the area rather than being restricted to the members of the clubs involved. To our knowledge, this is the only designated anchorage shown on the charts in the entire Columbia System intended for pleasure craft, and through their own expense and efforts rather than through public money, the boaters have preserved what amounts to a ~~marine~~ state park for their use at the present time & open to the entire boating public. The anchorage area is well protected from the prevailing Northwest winds of the summer months, as well as the wakes of craft in the main channel so that the waters are quiet and peaceful in this very beautiful area. Many boaters stay overnight in the anchorage area aboard their boats and, of course, many more go in for the day or late afternoon and evening, for approximately five months of the year. We consider this area one of the truly great natural recreational areas in this part of Oregon. One of the reasons for its very heavy usage is, of course, its close proximity to Portland, being only a matter of a few minutes by boat.

The proposed location for the new Bridge carries it directly over the anchorage area that I have discussed. We are, of course, concerned about what will obviously be a great deal of noise from highway traffic as well as the danger to boaters in the area from bottles or cans that might be thrown over the side, as well as cigarettes and the fire hazard that they could present if they should land in a boat unknown to the occupants. We are further concerned that the construction of piers through the upstream entrance of the anchorage would reduce the annual scouring of sand from the area by the freshets and further aggravate the already existing problem of sand filling the entrance to the anchorage. The Tri-Club Island

Corporation has recently spent money to remove piling to permit more effective scouring of the channel by the annual freshets and the current. We feel that the erection of large Bridge piers on the upper end may well close the channel entirely so that the entire anchorage would be lost to our use. We want assurance that this channel would be kept open to the navigation of boats into the lagoon.

While there are many sandy beaches along the various Islands such as Government Island, there are very few protected areas where boats can anchor so that the families involved can swim and enjoy the beaches. For instance, along the entire North shore of Government Island adjoining the main channel, the heavy current forbids swimming and the wave action induced by the prevailing summer winds and by passing boats makes any anchorage for cruisers very uncomfortable. On a typical evening, or Sunday afternoon during the summer, more boats by several times over will usually be seen in the Tri-Club anchorage area than along the entire North shore of Government Island which extends for several miles. I have brought pictures of the area involved illustrating some of its usage. and I would be happy to leave them for your use along with our prepared statement. I have also brought a navigational chart of the area (cut out area) marking in red lines the principal anchorage area that we are concerned and where it is heavily used. ~~If I may, I would like to relate the pictures to the charts, or aerial photograph of the area, so that you may know the area to which we are referring.~~

We believe that it would be a tragedy to destroy a major recreational area so heavily used by so many people of this area at the very time that we are, as a State, becoming increasingly aware of the need to develop recreational areas and are spending considerable sums of money toward that end. Many of us believe that the preferred course would be to make a State Marine Park of the area similar to the park provided by the State of Washington for boaters in the Beacon Rock area. The Tri-Club Island area is much more desirable for this purpose, would accommodate many more people, and we think that our membership might well be inclined toward making a gift of the Island to the State if proper assurances are given that the area will be kept open to the public and kept desirable for pleasure boating.

To facilitate this purpose, we feel that the proposed Bridge site should be moved at least one mile to the East of the proposed location, at the point where the present proposal crosses the East tip of Tri-Club, or Sand Island such a move would avoid entirely the anchorage area that the lagoon does presently use We recognize the problems that this presents to the Commission and staff, as well as the increased cost; but it is difficult to estimate the enormous cost of such a fine recreational area for so many people so very near the City of Portland. If one visits the Southern California area, one sees tremendous marinas dredged from swamps at the cost of millions of dollars for the purpose of mooring literally thousands of boats in each marina. Municipalities have issued millions of dollars of revenue bonds for this purpose. The boaters of that area are required to go directly into the ocean for their cruising and obviously do not have the tremendously attractive areas to cruise that we do along the Columbia River. If one feels that the population of Oregon will grow, then certainly the use of boats will grow at least proportionately placing tremendous demand upon the development in the future of recreational areas.

I have here the prospectus prepared in conjunction with the $13 million revenue bond financing of the Marina Del Rey Small Craft Harbor in Los Angeles County which moors 6,100 boats. Within the prospectus is a listing of the average number of boats per 1,000 of population for each of the 10 Coast Guard Districts of the United States. The District made up of Oregon, Washington, Montana, and Idaho has 5.2 registered boats per 1,000 of population compared to 1.6 registered boats per 1,000 in the Southern California area. And incidentally, no other district in the United States has as large, any where near as large, a registration of boats relative to the population as we do here. In fact, we exceed twice the national average. No other District has a ratio of boat registration to population as high as that of the Northwest. I think this illustrates not only the present demand for boating recreational areas, but also the latent future demand connected with population growth.

We make this statement in the spirit of cooperative effort with the Commission and staff knowing your many problems connected with this highway. We appeal to you at the very least to come with us to observe the site by boat before any final decision is made with the hope that some solution might be found to save this recreational area.

I have copies of the statement and I wish to have them here. I will leave copies of the navigational chart and the pictures that are involved. If there are questions, I would be happy to answer them. And perhaps one of the other members of the committee would like to make a few remarks.

JACKSON: What percentage of sailboats operating in this area require clearance in excess of 48 feet?

GETZ: I would have to guess - I would say perhaps a third to 50 percent of the sailboats, but when we say clearance in excess of 48 feet, if we are talking about the datum level, the water I can't recall that water ever being that low. Today the water is 20 feet above the datum level so

48 feet would leave you a net of 28 feet, which would restrict almost all of the sailboats. Typically, more typically, in the rest of the year, you might say the predominant water level is 8 to 10 feet above the - well say - 7 to 10 feet above the datum level, so you would have a net of 35 to 38 feet remaining - which would still capture a major portion of the sailboats.

REP. CONNIE McCREADY: Mr. Chairman, members of the Commission, I am Rep. Connie McCready from Portland and our previous speaker just stole all of my stuff. So I have a couple of quick notes and I'll just talk off the cuff. I'm here wearing three hats, one as a ragpicker, sailboater, and the other is a conservationist. I don't know how many of you may have ever met my dad, the late Ed Abrel - who was one of the forerunners in this thing and I grew up on saving stuff. And three, as the Chairman of the Subcommittee on Planning and Development Committee on Recreational Planning.

And first as a ragpicker from a very personal selfish point of view, I want to be able to go up to that moorage and it is the only - really it is a unique thing as Mr. Getz said, this is - until you have seen it, it is a fantastic place - it is the only safe moorage for boats where people can take their families and the children are safe on these islands. I think the smartest thing that these yacht clubs did in buying that island to make it a place for the whole public and I'll kinda jump back and forth among the hats if you don't mind.

We discovered that the boaters from Washington and California they all come up here. We found a tremendous increase. You people with your highways probably know how many trailers are going through the State with boats. I know they are a hazard on the highways but they are something that brings them up is just great and this is the only place that an out-of-towner - out-of-stater can go in any kind of safety and more, it is safe from all the river traffic and it is safe from the water skiers and these people have maintained this. They have paid all the taxes. They dredge. They post the speed limits so the skiers can't run down the kids swimming. They maintain garage facilities, heads, all this sort of thing. And they have opened it to everyone and it is really quite a drawing card. And from the safety point of view of that and besides the danger of the bridge. I'm one who was nearly missed by a flying wine bottle when we tied up this side the public moorage down here at the Willamette River - that's right by the access to Harbor Drive and believe me, that's an experience when one of those things come flying through the air at you. The thought of a bridge up there over that moorage is really a pretty nasty thing. I am concerned about the cigarettes that go off this - to the sails cost and the danger around the gasoline or the fire on a boat.

I know that you people have the same kind of a job that we do over there of trying to do the most good for the most people, and we see both sides of things, but I do think there is a minority deserves some consideration. We have to keep these wilderness areas up there in the Wallowa country. It is a fantastic, lovely place and I've seen wild turkeys and deer on this island practically in the middle of Portland and I know that they have discussed the expense and it would cost a lot to move it east, but I think some things you just plain can't count in money when it is an all time thing. And I think you people and us people over there, have to preserve some things for our children and their children and their children. I sure hope you will do every thing you can to push that thing a chunk east. Do you have any questions of me before I sneak back and start voting?

**JACKSON:** Was the original bridge location as indicated at the time we held public hearings on this matter, was it satisfactory?

**MC CREADY:** As I recall, I wasn't aware of all of the problems until all of a sudden we heard about the height. Was that farther up Government Island.

**JACKSON:** No, it was closer to the airport. It was further west than the present location that you are discussing. Now was the original location of this bridge and its height satisfactory to the boaters.

**MC CREADY:** As I recall the height was - it, too, touched Government Island, I mean the Tri-Club Island, did it not?

**JACKSON:** Yes, it did.

**MC CREADY:** Well, I hate to see a beautiful wilderness area I have that Stewart Holbrook (inaudible) and I hate to see it raise right over something that is wild. But it would be - no - not really satisfactory, but it would be better than this at least we could get under it from the Government Island lake.

**JACKSON:** I think that the requirements for height would have been the same as we are now discussing even at the old location. I think that we are speaking about two things. The question of height would have been present even at the prior location. Now we are talking about two things. One, would the placement of the bridge at its original location destroy this anchorage area to the extent that the proposal we have under consideration would destroy it.

**MC CREADY:** I would think so - anything that goes over this area where all these boats are moored and they are sleeping - there is a chance of cigarettes or things thrown from the bridge and unfortunately you people are aware as anyone must be about what people do driving along the highways.

JACKSON: Here is the problem that you pose. This is the reason that I asked the question. This I-205 has probably been one of the most controversial problems that this Commission has ever faced. The location of this bridge - the right of way through Multnomah and Washington Counties have been discussed in the papers. We have had enumerable hearings, and after its settlement, we committed ourselves to the Federal Government and we started spending the State's money. Now if this bridge location originally, or the situation that we are now discussing, was unsatisfactory the boating people of this State should have come in long ago because you have the State stuck in a position that we either build I-205 on the basis of some reasonable adjustment of the original bridge location in order to take care of the air transportation problems involved at the Portland International Airport. We either do that or we limit ourselves to the areas that we are now talking about - we either kill it or we limit ourselves to these areas. Any increase in the height of this bridge means that we have to go up stream. Any further movement of that bridge gets us into a review of the entire I-205 problem which the State has already committed substantial funds. We are caught in a situation here that is certainly not timely because these matters should have been brought up at the time the original right of way and bridge locations were settled. This has been approved by Multnomah County, the City of Portland, the Clark County across the river, Washington Highway Commission, the Bureau of Public Roads, all of these people that are involved in this thing. After two years of controversy has settled this problem. Now we face a situation which should have been brought up initially because it means that we not only undo the work that has been done by the States of Washington and Oregon, Bureau of Public Roads, and all of the subdivisions of government and organizations involved, we also place in jeopardy a large sum of money already expended by the State of Oregon based upon these understandings and agreements. We are in a position where our latitude of movement of that bridge is strictly limited to a very, very small area. We are on the outer edge to the east right now on the limits that we can do business on. There's our problem.

MC CREADY: I see your problem. Undoubtedly, we boaters have been lax in (inaudible). I do know there was considerable talk and speculation, but none of us could really find out - there was mostly rumor from what I understand, members of the Columbia River Yachting Association were unable to get definite statements of just what was proposed. I know every time we would be out in the river people would say that is where the bridge is going to go or oh no, they are considering this and considering that. Now perhaps they contacted the wrong people. But there has been a great deal in the press and a great deal of controversy. I can certainly see your problem. Could you tell me what the responsibility would be say of the highway department if the bridge does go over here, would they be responsible for the maintenance of bridge sides, as they are the roadsides, would the highway crews come out by boat and clean up the ---

JACKSON: It would be a joint responsibility of the State of Washington and the State of Oregon and it would be subject to the same maintenance and control as any other bridge.

MC CREADY: And say if the sand piles up and blocks the moorage, would this be then the -

JACKSON: This would probably be a responsibility of the Corps of Engineers.

MC CREADY; We saw what they did. I think all I could say is sob. But I do soundly protest it but that's about as far as I can go.

JACKSON: I want you to understand that the Commission is well aware of these problems and we recognize that whenever we enter into a construction program, we destroy something. Now the question is, do we give back in terms of transportation and other things more than we destroy. This is an interstate program, a federal program, in which we are charged with the responsibility of carrying out the provisions of the act. Believe me, the last two or three years have not been pleasant for this Commission in an attempt to carry out its responsibility. Now we come to the end of the road, where we are in a strait jacket money wise - area wise and we are being called upon to change the whole format. We can't do it. We are stuck with it. We were faced during the past month with these changes due to the problems of the Portland International Airport. We were fortunately able to make enough adjustment within the guidelines that we have to live under on this particular situation by virtue of the fact that they were willing to do certain things that fitted their problem and our problem within the limitations that we had to work. Now we come to a problem that would be completely out of our ability to do anything about. I hate to tell you this type of story, but we just as well be factual about it, because when you ask us to do this, it is not because we have any desire to be a party to the destruction of a recreational asset but we have no choice, this is simply, we are locked in on. We can either decide here that we kill 205 as we know it today and toss away the money that we spent and start over again and I think that's asking quite a lot, and the people of the State of Oregon, I don't believe, will hold still for it. And if we made such a decision, that we better not hold very still or they are going to catch up with us.

MC CREADY: How about a few hundred yards?

JACKSON: We extended the last few hundred yards in an attempt to solve the problem of the Portland International Airport.

MC CREADY: Do you think it is going to solve their problem?

JACKSON: The ultimate problem of the Portland International Airport is a 10-year interim period in which they can make such certain adjustments to their plans and we make the adjustments to our plans within the limits that we can adjust. The ultimate problem of Portland is not solved. It will never be solved in our opinion and I think in theirs at the present location. But it will always be an airport and we are simply talking in terms of their solution in terms of the next ten years. The ultimate will unquestionably be a complete new location to provide the facilities of the type of aircraft and the number of people that re going to be involved in air transporation.

MC CREADY: Thank you.

JACKSON: Thank you and I'm sorry that our answer has to be this way. Any other comments?

GETZ: Mr. Commissioner that concludes our testimony. On the pictures there, you might be interested in, are all taking approximately the same time. The one I would like to draw your attention is to the difference of the nature of the water - the rough water that's on the outside as compared to inside. I hope that you will consider this further and we would like to have you, if possible, to view the site in order to understand fully our problem.

JACKSON: Believe me, we certainly intend to cooperate in every way we can, but I certainly wanted you to understand the areas of change and the areas of opportunity to be helpful are rather limited.

GETZ: I might explain as a new officer of the association, I'm not prepared to know what we have done in the past, but it didn't come to my personal attention that this bridge across the highway until we saw notices of the Corps of Engineers - rather across the island until we saw notices of the Corps of Engineers. We were under the impression that the uncertainty that had been created in the last couple of years as to the changed location to the city had not yet already been (inaudible) -

JACKSON: This particular section of the routing through Multnomah County has not been at issue. This was set early in the game, but it has been well publicized and this issue has come up only within the last couple of months by virtue of the problems of the Portland International Airport.

GETZ: Thank you very much.

Columbia River
YACHTING
ASSOCIATION

June 7, 1967

Oregon State Highway Commission

Salem, Oregon

Gentlemen:

My name is Reuben Getz and I appear as Vice President of the Columbia River Yachting Association. I want to introduce my associates who are here with me today. First of all, Mr. Howard Cunningham, Commodore of Portland Yacht Club, whose members are among the owners of the Island known as Tri-Club Island in the Columbia River. Mr. Cunningham serves today as delegate of Tri-Club Island Corporation. Also, Mrs. Connie Macready, an active sail-boater and member of Rose City Yacht Club, another of the Club's whose membership are owners of Tri-Club Island; and Mr. Don Wells, a member of the Oregon State Marine Board.

The Columbia River Yachting Association is made up of 16 boating clubs, the majority of which are situated in the Portland area along the Columbia River. The membership of these various clubs numbers in excess of 2,000 families.

Our membership is vitally concerned with the proposed I-205 Bridge across the Columbia River. Our first concern relates to the proposed height as the bridge crosses the South channel of the River located between the Oregon shore and Government Island. Family boating in Oregon, particularly in the Portland area, has grown at a remarkable rate during the last 10 years and all indications are that this growth has only begun. As we look for additional areas of growth along the Oregon shore of the Columbia River, it seems almost certain that the principal remaining area for the growth of marinas, yacht clubs, etc., to handle the future boating population, must occur along the Oregon shore of the South channel, South of Government Island. By the same token the obvious future for the development of recreational use of the beaches for boaters lies along the South shore of Government Island facing, again, the same South channel. It is this area of the River that offers a large expanse of beaches and waters protected from the prevailing Northwest winds during the summer months, as well as the wakes of larger vessels passing in the main channel. We would like to be assured of sufficient height of the Bridge over the South channel to permit the passage of vessels into this protected area. We feel that a minimum clearance of 65 feet from the datum level is needed to permit passage of the sail boats in the area with their high masts. Without this clearance, many of the boats of the area, which, incidentally, have been increasing in average size, would not be able to use the South channel, either for marine moorage facilities or for the recreational areas offered on the South side of Government Island. With the limited speed and range of the sailboats, this presents a considerable problem.

Our second concern is regarding the proposed location of the Bridge as it crosses Tri-Club Island, but even more particularly, the adjoining anchorage area between the Island and Government Island as well as Lemon Island. A number of years ago the members of three of the yacht clubs of the area purchased Tri-Club Island with the ownership to reside directly with the individual members. The purpose of the purchase was to keep the lagoon behind the Island open to boaters rather than to commercial development. The area has been expressly made available to all boaters in the area rather than being restricted to the members of the clubs involved. To our knowledge, this is the only designated anchorage shown on the charts in the entire Columbia System intended for pleasure craft, and through their own expense and efforts rather than through public money, the boaters have preserved what amounts to a marine park. The anchorage area is well protected from the prevailing Northwest winds of the summer months, as well as the wakes of craft in the main channel so that the waters are quiet and peaceful in this very beautiful area. Many boaters stay overnight in the anchorage area aboard their boats and, of course, many more go in for the day or late afternoon and evening, for approximately five months of the year. We consider this area one of the truly great natural recreational areas in this part of Oregon. One of the reasons for its very heavy usage is, of course, its close proximity to Portland, being only a matter of a few minutes by boat.

The proposed location for the new Bridge carries it directly over the anchorage area that I have discussed. We are, of course, concerned about what will obviously be a great deal of noise from highway traffic as well as the danger to boaters in the area from bottles or cans that might be thrown over the side, as well as cigarettes and the fire hazard that they could present if they should land in a boat unknown to the occupants. We are further concerned that the construction of piers through the upstream entrance of the anchorage would reduce the annual scouring of sand from the area by the freshets and further aggravate the already existing problem of sand filling the entrance to the anchorage. The Tri-Club Island

Corporation has recently spent money to remove piling to permit more effective scouring of the channel by the annual freshets. We feel that the erection of large Bridge piers on the upper end may well close the channel entirely so that the entire anchorage would be lost. We want assurance that this channel would be kept open to the navigation of boats into the lagoon.

While there are many sandy beaches along the various Islands such as Government Island, there are very few protected areas where boats can anchor so that the families involved can swim and enjoy the beaches. For instance, along the North shore of Government Island adjoining the main channel, the heavy current forbids swimming and the wave action induced by the prevailing summer winds and by passing boats makes any anchorage for cruisers very uncomfortable. On a typical evening, or Sunday afternoon during the summer, more boats by several times over will usually be seen in the Tri-Club anchorage area than along the entire North shore of Government Island which extends for several miles. I have brought pictures of the area involved and I would be happy to leave them for your use along with our prepared statement. If I may, I would like to relate the pictures to the charts, or aerial photograph of the area, so that you may know the area to which we are referring.

We believe that it would be a tragedy to destroy a major recreational area so heavily used by so many people of this area at the very time that we are, as a State, becoming increasingly aware of the need to develop recreational areas and are spending considerable sums of money toward that end. Many of us believe that the preferred course would be to make a State Marine Park of the area similar to the park provided by the State of Washington for boaters in the Beacon Rock area. The Tri-Club Island area is much more desirable for this purpose, would accommodate many more people, and we think that our membership might well be inclined toward making a gift of the Island to the State if proper assurances are given that the area will be kept open to the public and kept desirable for pleasure boating.

To facilitate this purpose, we feel that the proposed Bridge site should be moved at least one mile to the East of the proposed location, at the point where the present proposal crosses the East tip of Tri-Club, or Sand Island. We recognize the problems that this presents to the Commission and staff, as well as the increased cost; but it is difficult to estimate the enormous cost of such a fine recreational area for so many people so very near the City of Portland. If one visits the Southern California area, one sees tremendous marinas dredged from swamps at the cost of millions of dollars for the purpose of mooring literally thousands of boats. Municipalities have issued millions of dollars of revenue bonds for this purpose. The boaters of that area are required to go directly into the ocean for their cruising and obviously do not have the tremendously attractive areas to cruise that we do along the Columbia River. If one feels that the population of Oregon will grow, then certainly the use of boats will grow at least proportionately placing tremendous demand upon the development in the future of recreational areas.

I have here the prospectus prepared in conjunction with the $13 million revenue bond financing of the Marina Del Rey Small Craft Harbor in Los Angeles County which moors 6,100 boats. Within the prospectus is a listing of the average number of boats per 1,000 of population for each of the 10 Coast Guard Districts of the United States. The District made up of Oregon, Washington, Montana and Idaho has 5.2 registered boats per 1,000 of population compared to 1.6 registered boats per 1,000 of population in the Southern California, Arizona and Nevada District. No other District has a ratio of boat registration to population as high as that of the Northwest. I think that this illustrates not only the present demand for boating recreational areas, but also the latent future demand connected with population growth.

We make this statement in the spirit of cooperative effort with the Commission and staff knowing your many problems connected with this highway. We appeal to you at the very least to come with us to observe the site by boat before any final decision is made with the hope that some solution might be found to save this recreational area.

Respectfully submitted,

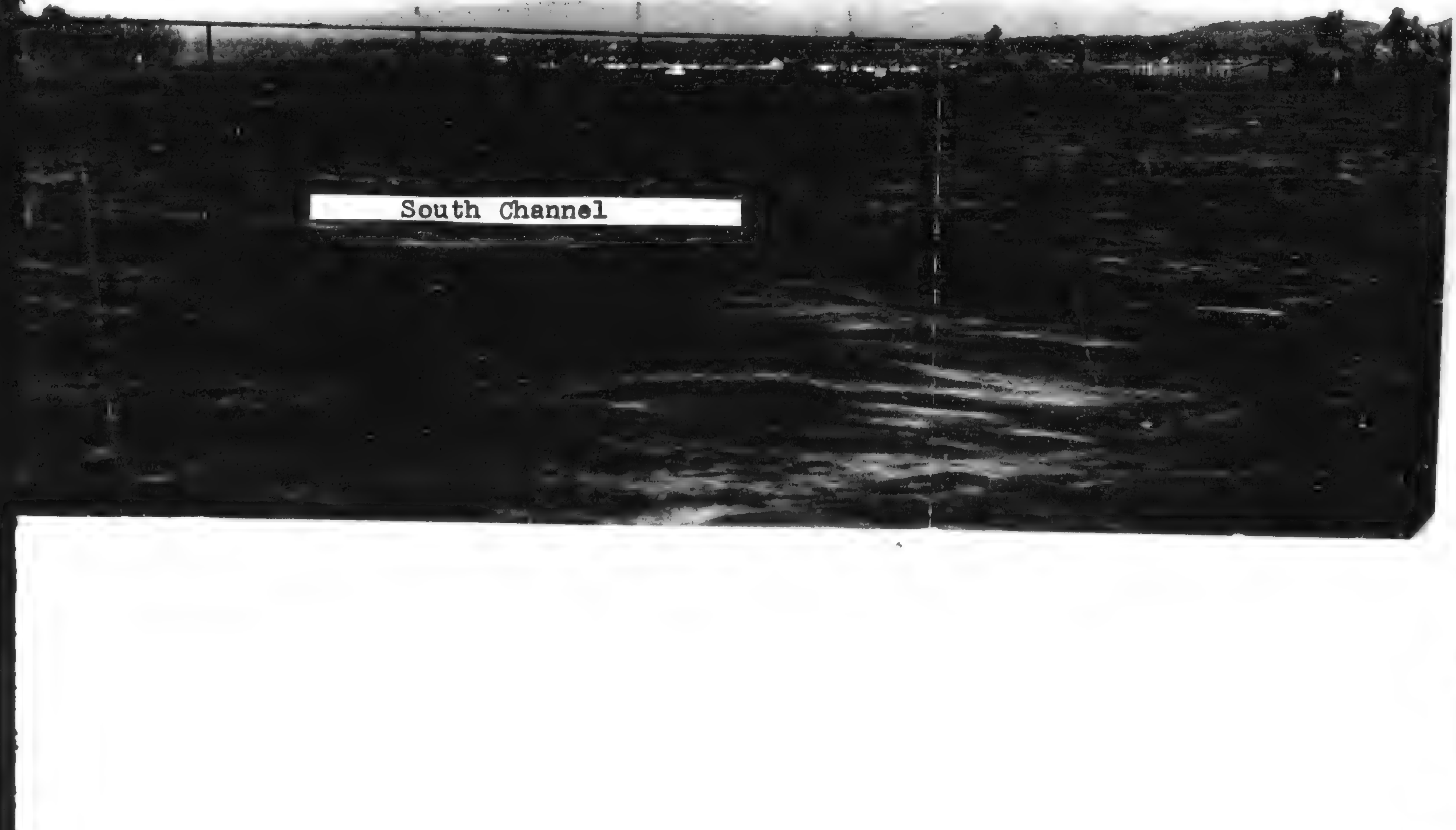
Reuben D. Getz

Reuben D. Getz, Vice President
Columbia River Yachting Association

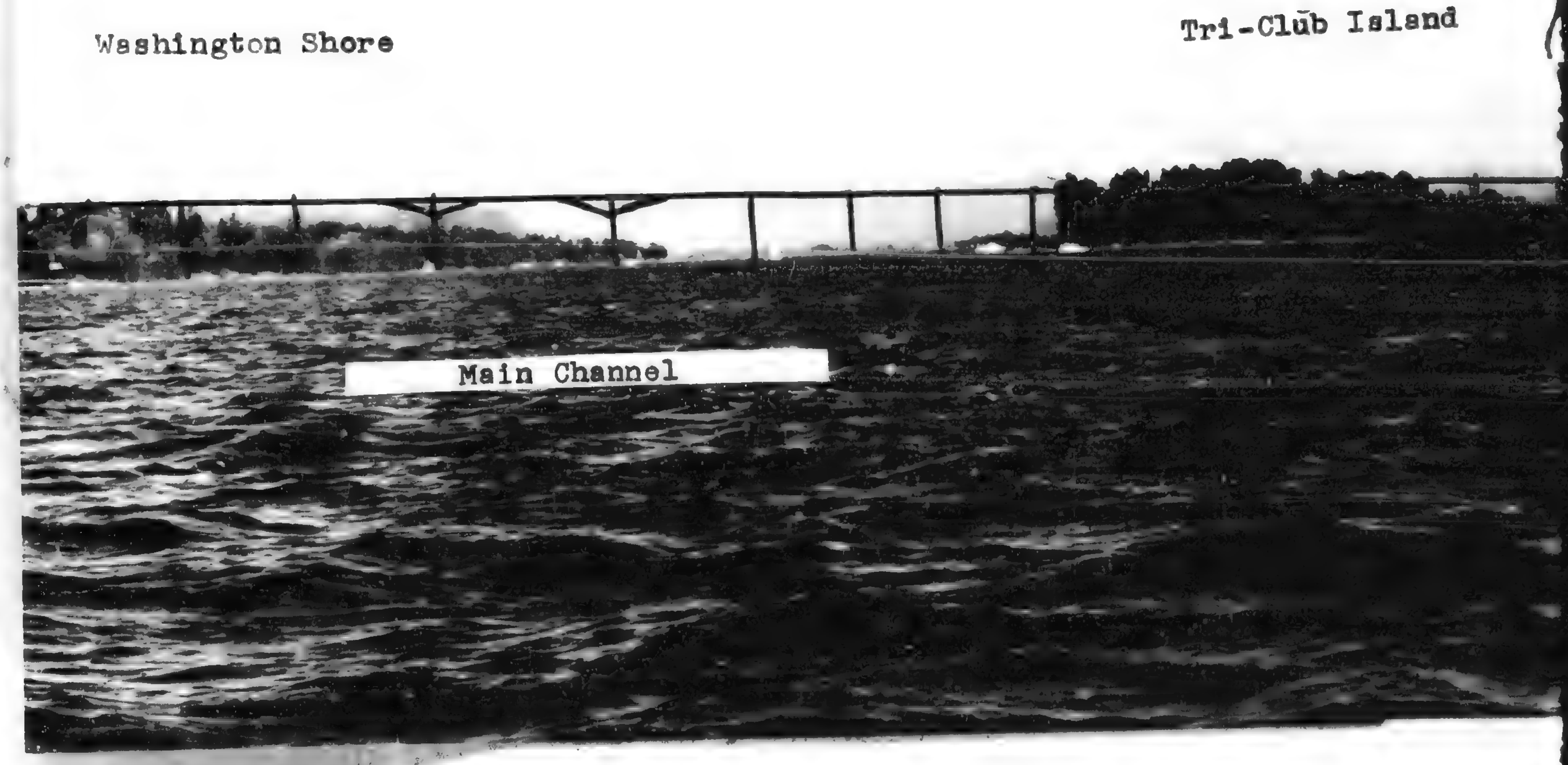
RDG:dkh
Enclosures

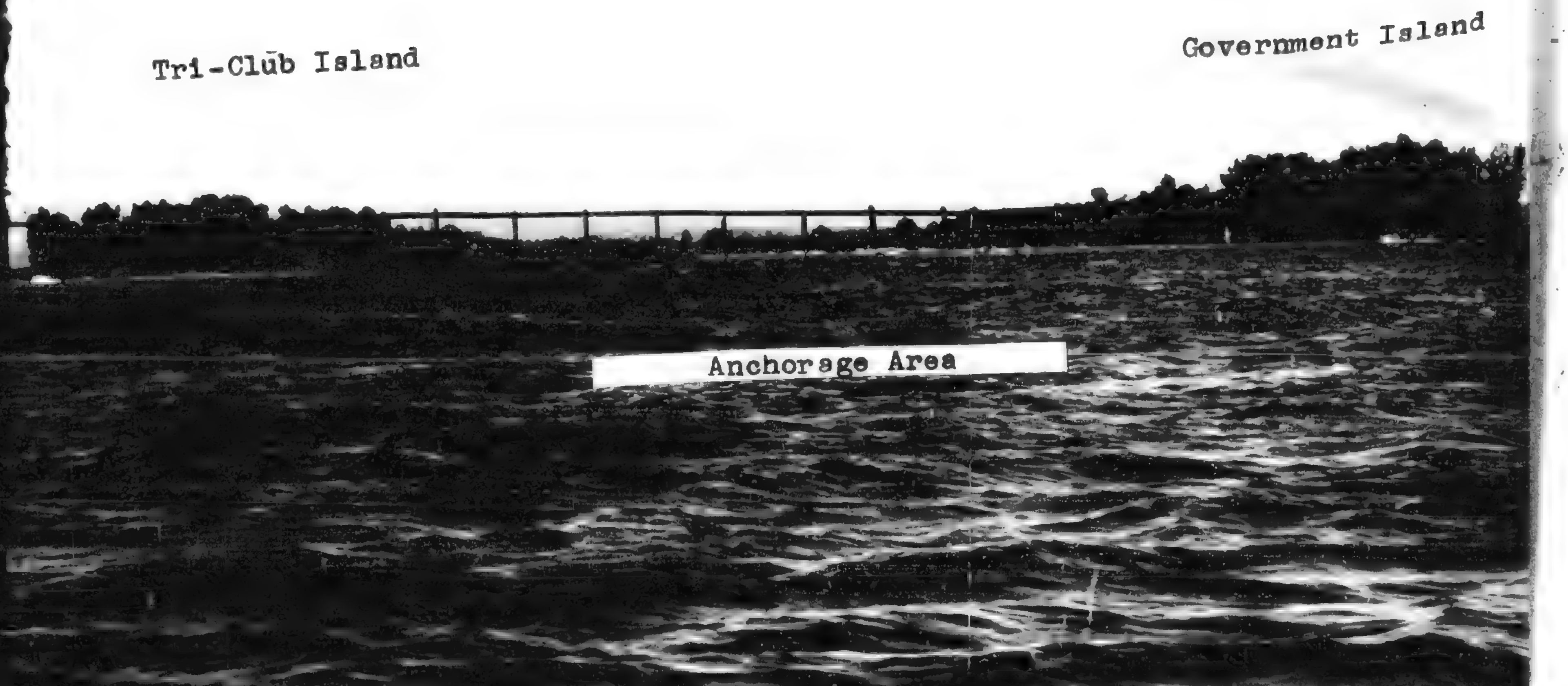
Government Island

South Ch


Oregon Shore

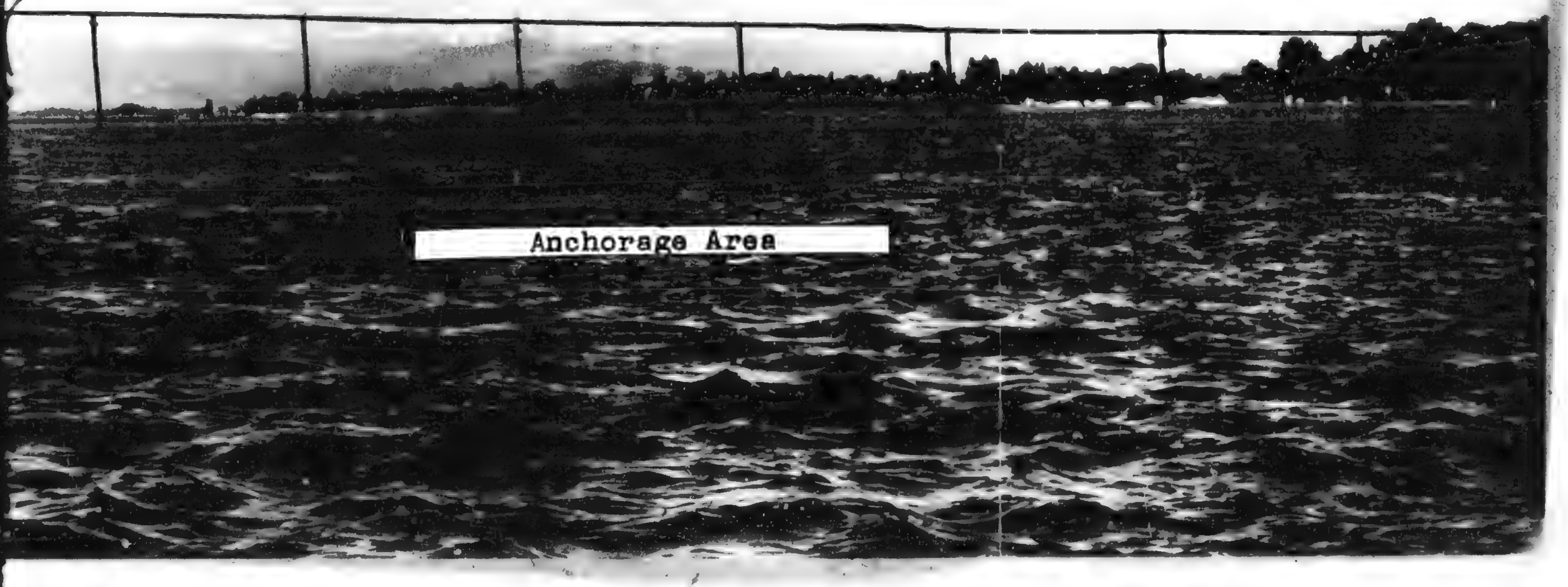
South Channel

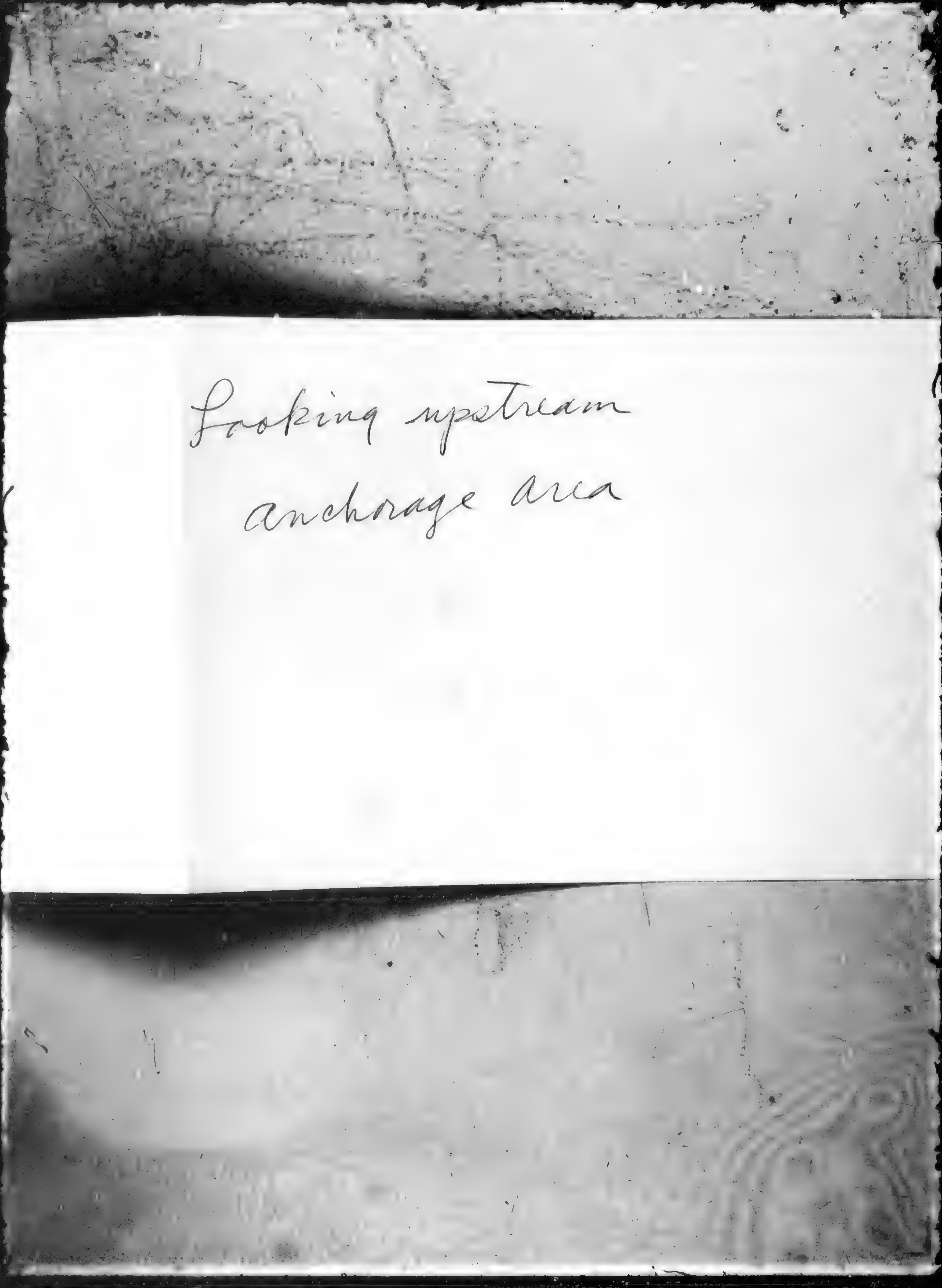

Washington Shore
Tri-Club Island
Main Channel


Tri-Club Island
Government Island
Anchorage Area

Tri-Club Island

An


Government Island
Anchorage Area

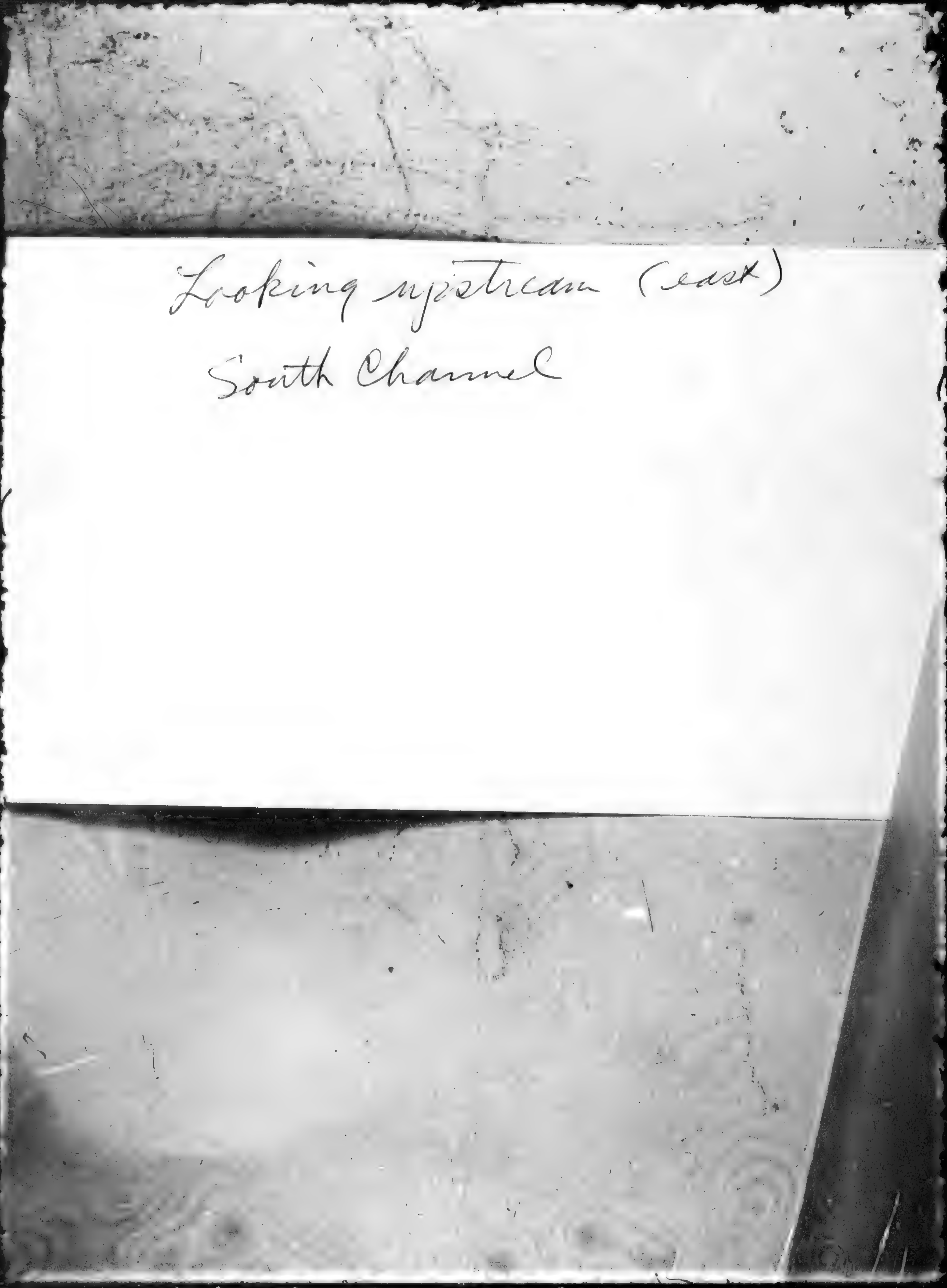


Looking upstream
anchorage area

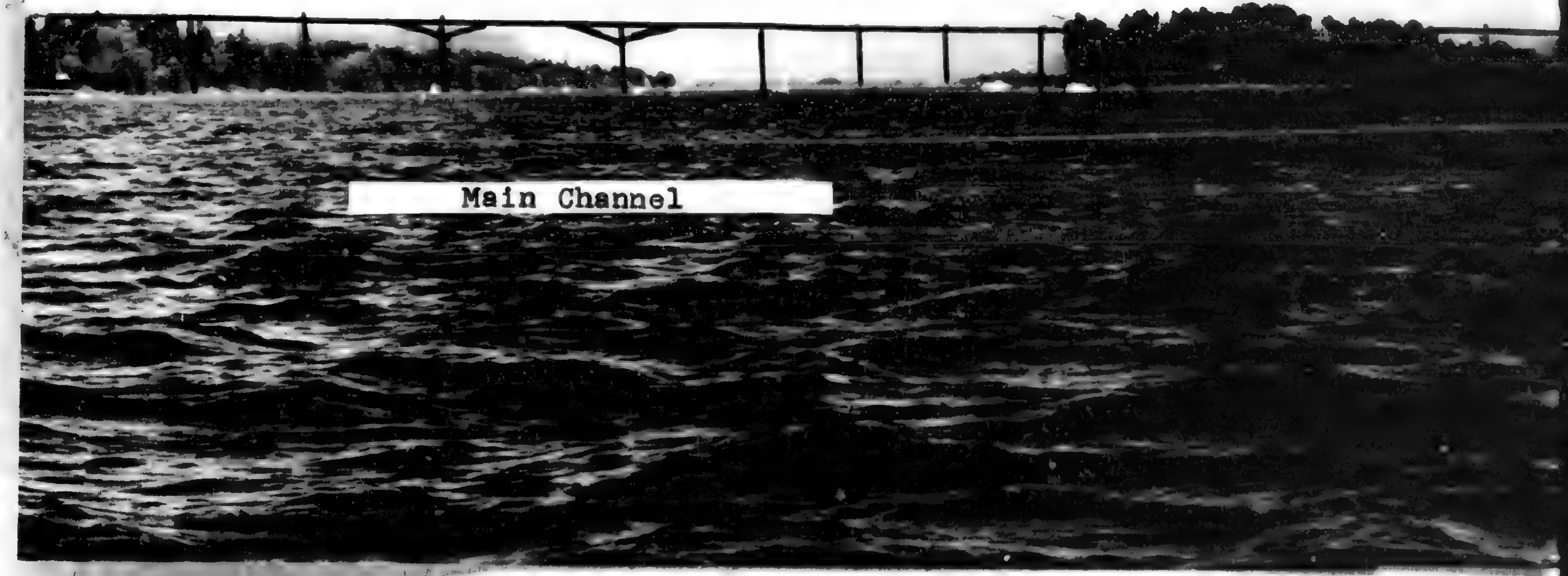
Government Island

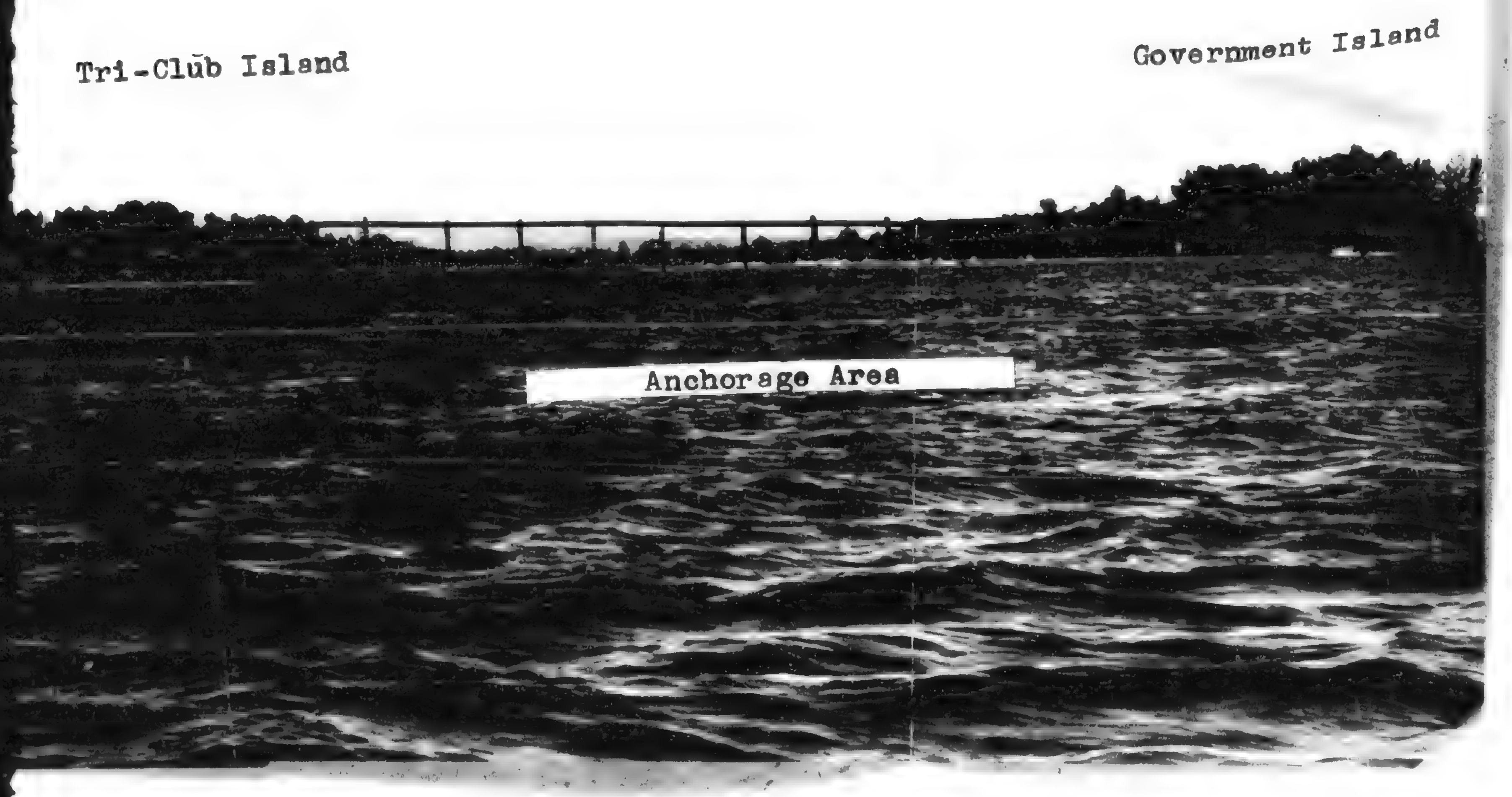
South Chann

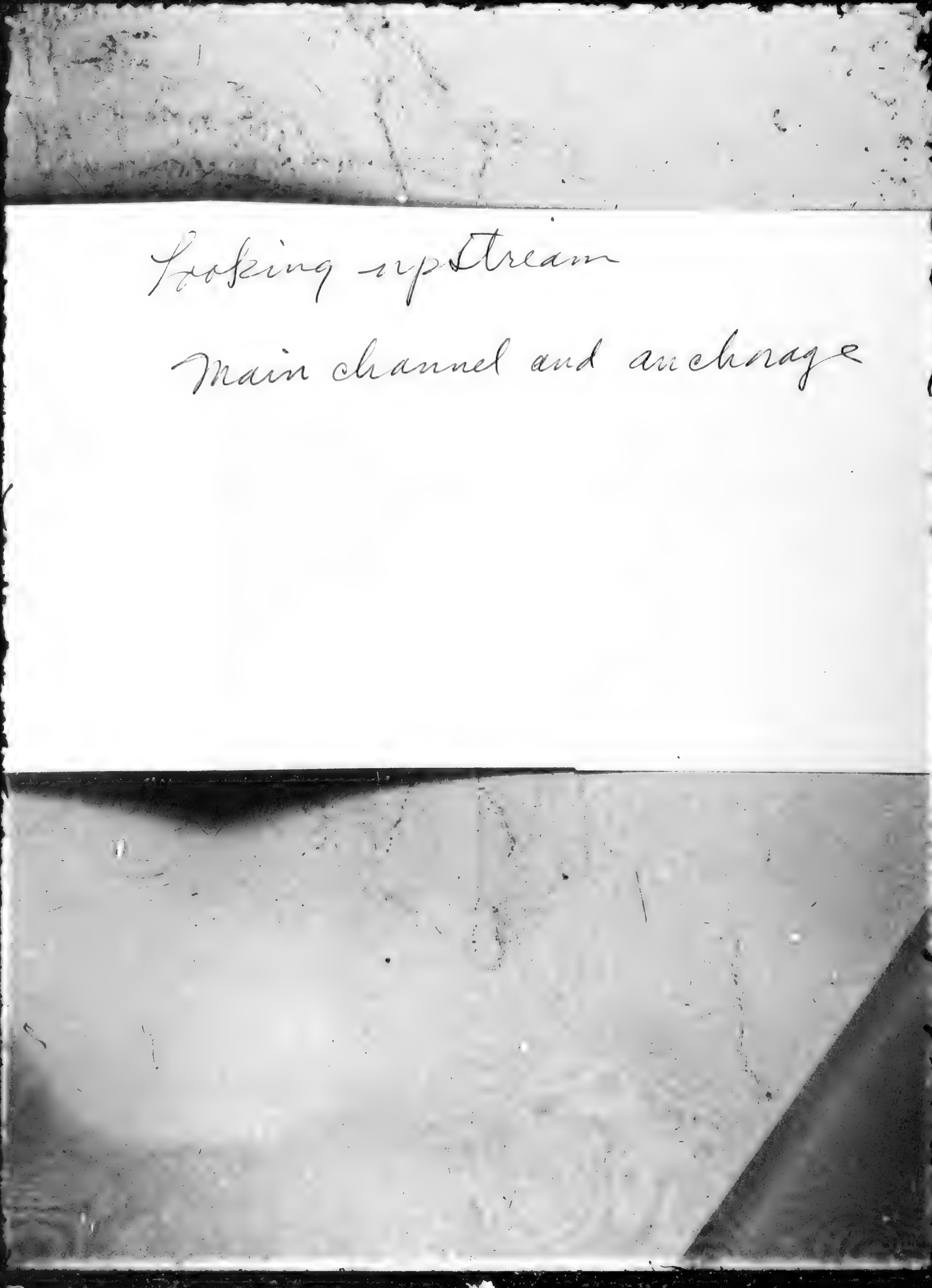
Oregon Shore
South Channel



Looking upstream (east)
South Channel


Washington Shore
Tri-Club Island
Main Channel


Tri-Club Island
Government Island
Anchorage Area

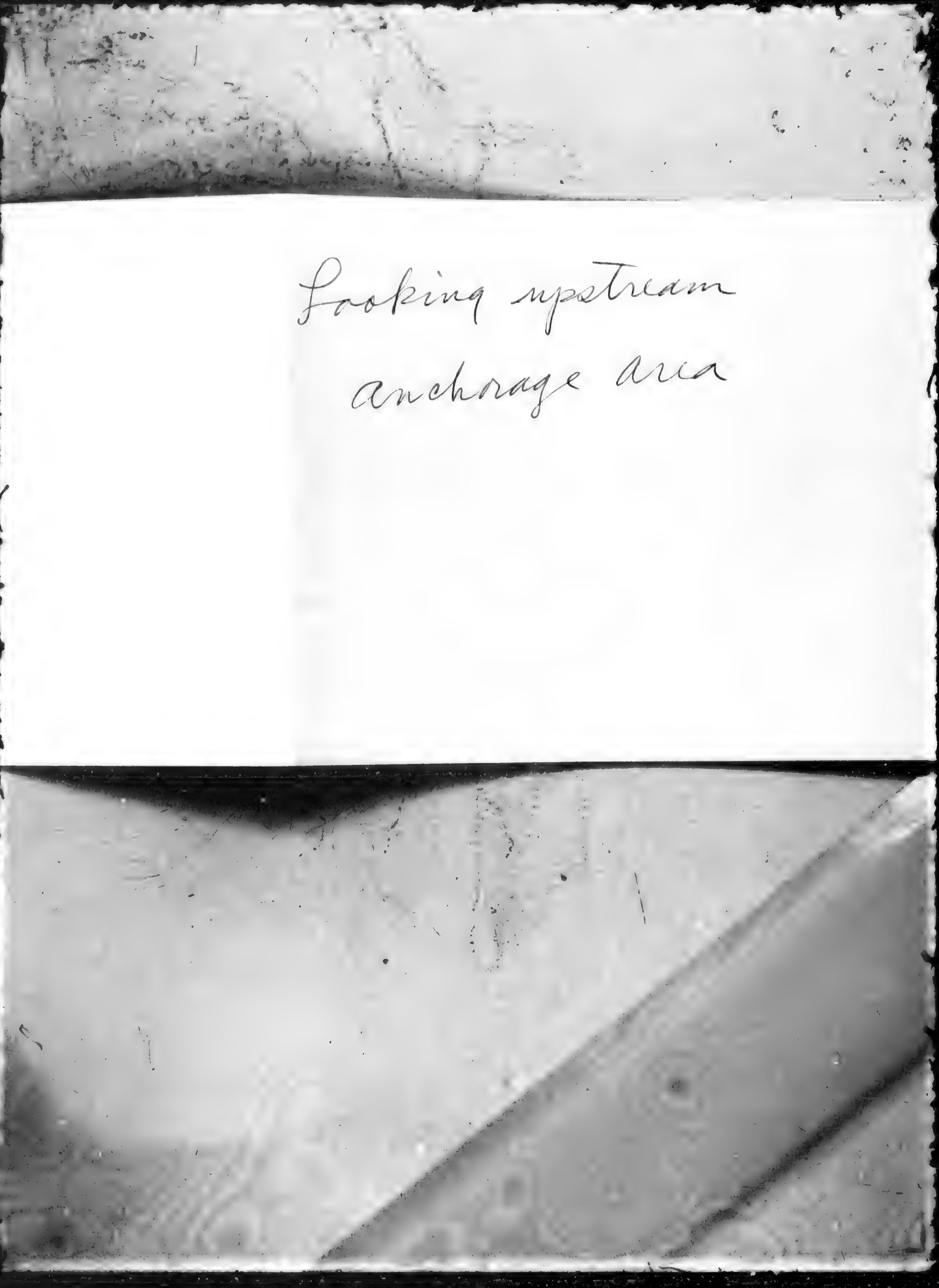


Looking upstream

Main channel and anchorage

Tri-Club Island

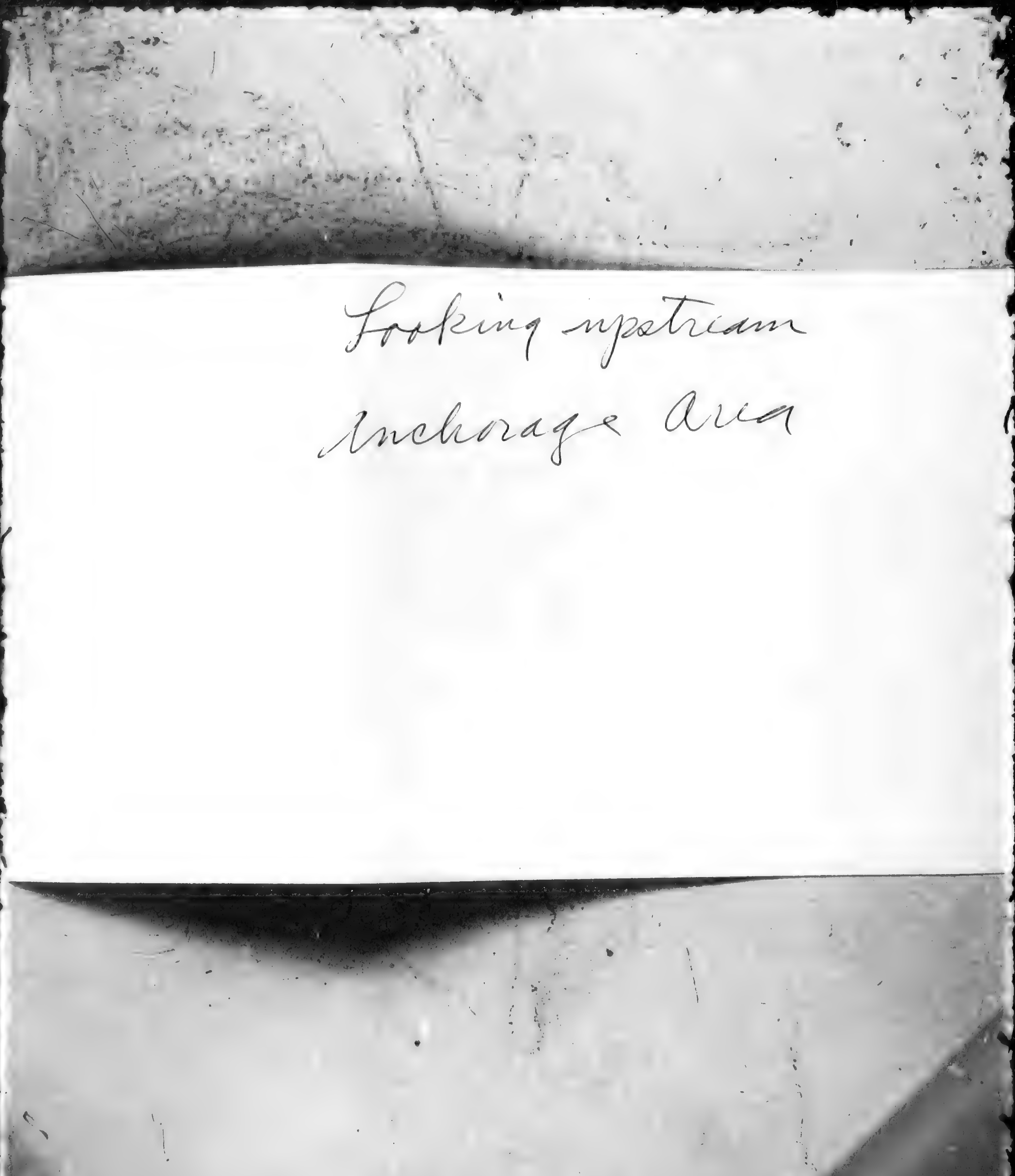
Government Island
Anchorage Area



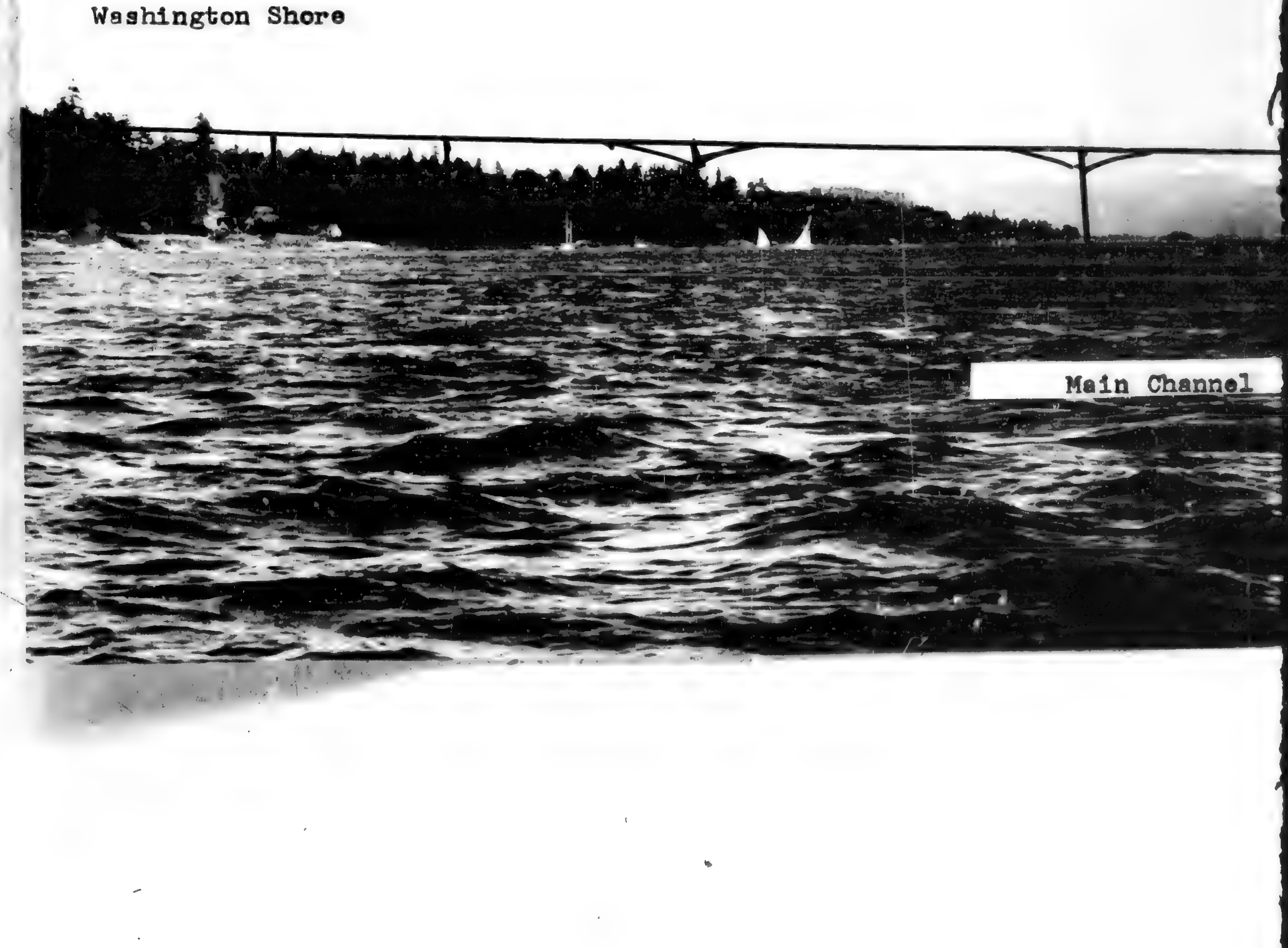
Looking upstream anchorage area

Anchora

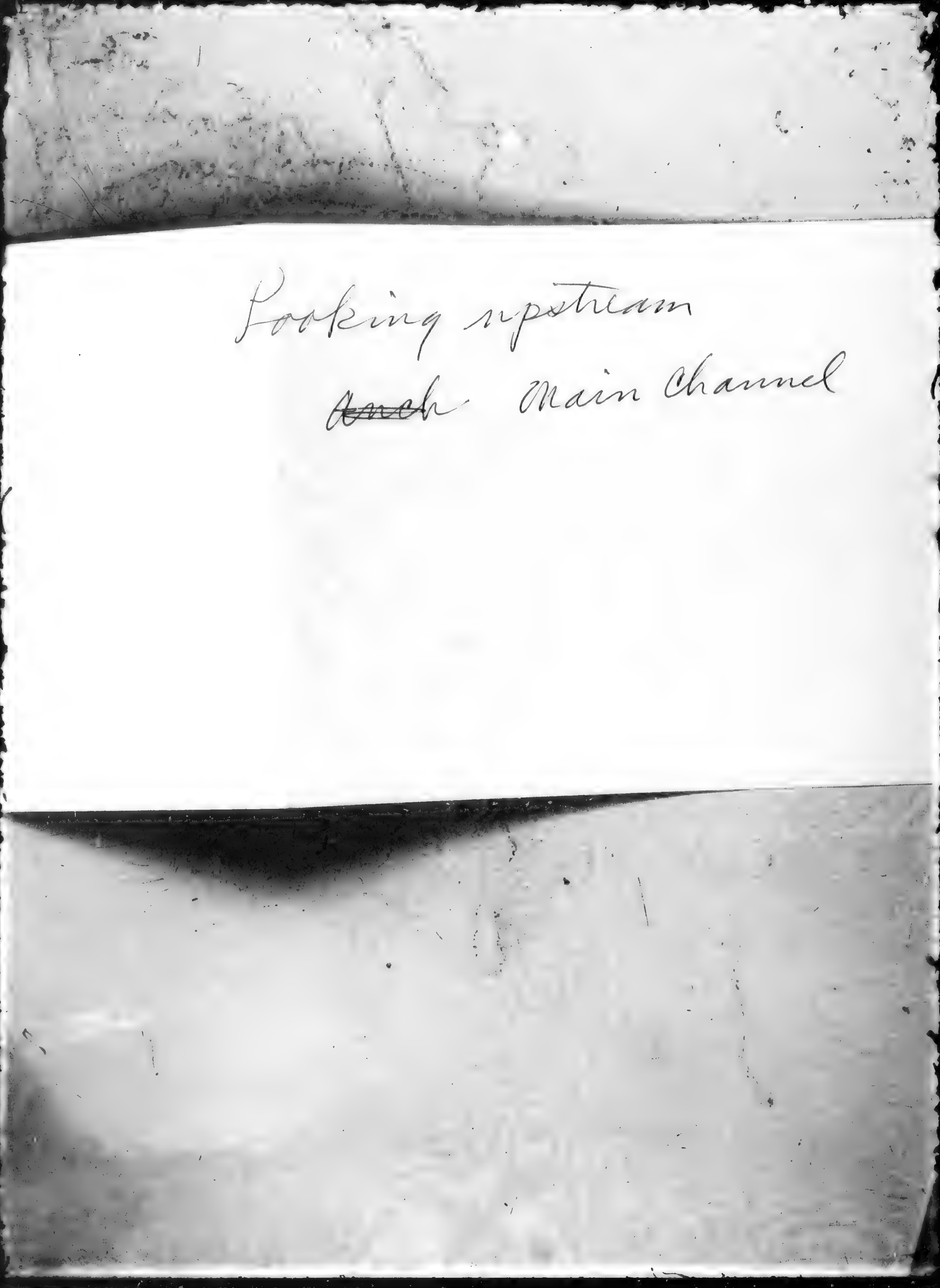
Government Island
Anchorage Area



Looking upstream
Anchorage Area


Washington Shore
Main Channel

Tri-Club Island
Main Channel

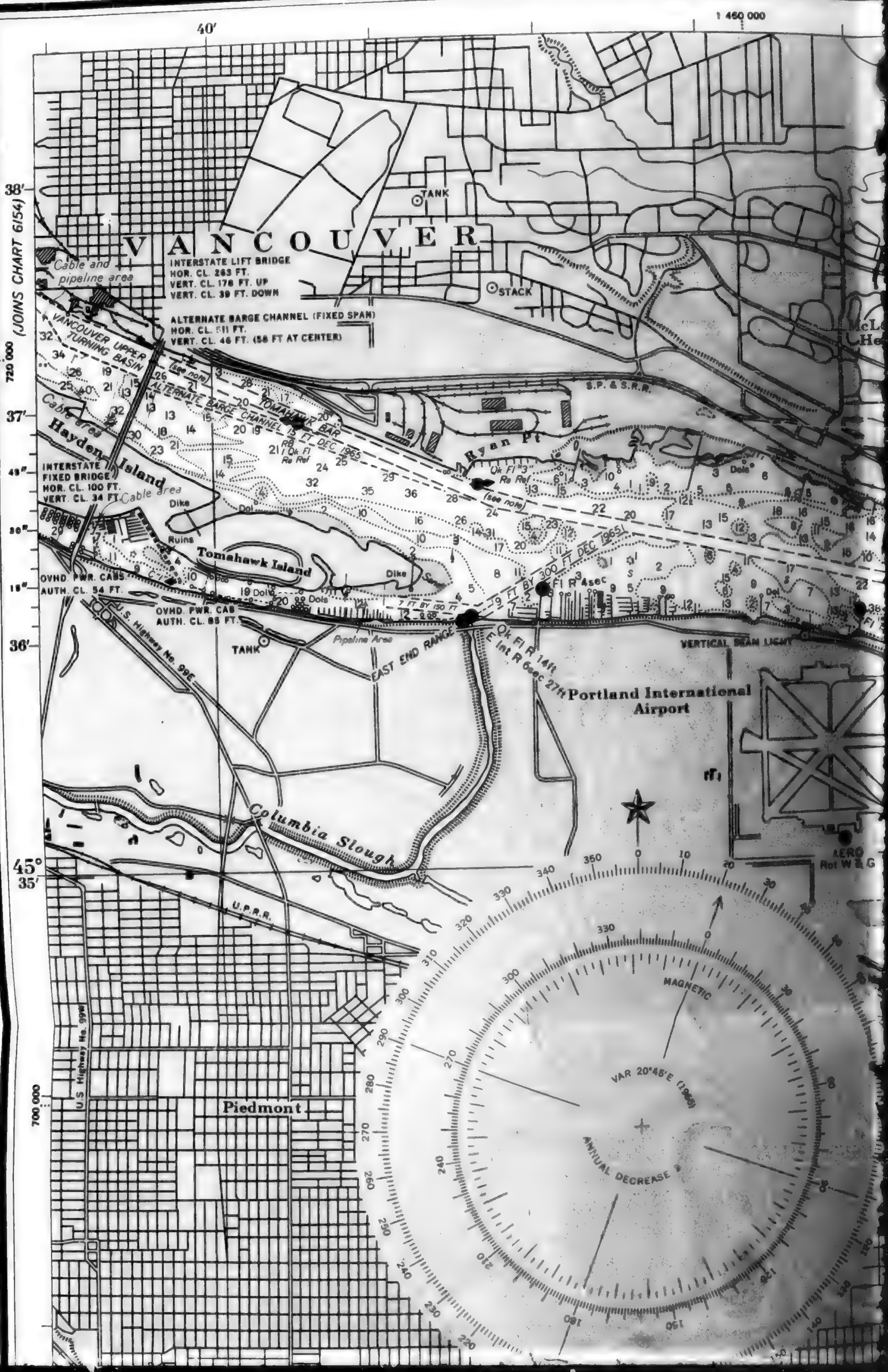


Looking upstream

~~Arch~~ Main Channel

DEPARTMENT OF COMMERCE UNITED STATES OF AMERICA

6156


40′
1 460 000
38′
37′
36′
45°
35′
720 000
700 000
(JOINS CHART 6154)
VANCOUVER
TANK
STACK
INTERSTATE LIFT BRIDGE
HOR. CL. 263 FT.
VERT. CL. 176 FT. UP
VERT. CL. 39 FT. DOWN
ALTERNATE BARGE CHANNEL (FIXED SPAN)
HOR. CL. 511 FT.
VERT. CL. 46 FT. (56 FT AT CENTER)
Cable and pipeline area
VANCOUVER UPPER TURNING BASIN
ALTERNATE BARGE CHANNEL 15 FT DEC 1965
TOMAHAWK BAR
S.P. & S.R.R.
Ryan Pt
Hayden Island
Cable area
INTERSTATE FIXED BRIDGE
HOR. CL. 100 FT.
VERT. CL. 34 FT.
Dike
Ruins
Tomahawk Island
OVHD. PWR. CABS.
AUTH. CL. 54 FT.
OVHD. PWR. CAB
AUTH. CL. 85 FT.
U.S. Highway No. 99E
TANK
Pipeline Area
EAST END RANGE
9 FT BY 300 FT DEC 1965
Ok Fl R 14ft
E Int R 6sec 27ft
Fl R 4sec
VERTICAL BEAM LIGHT
Portland International Airport
AERO
Columbia Slough
U.P.R.R.
U.S. Highway No. 99W
Piedmont
MAGNETIC
VAR 20°45′E (1965)
ANNUAL DECREASE

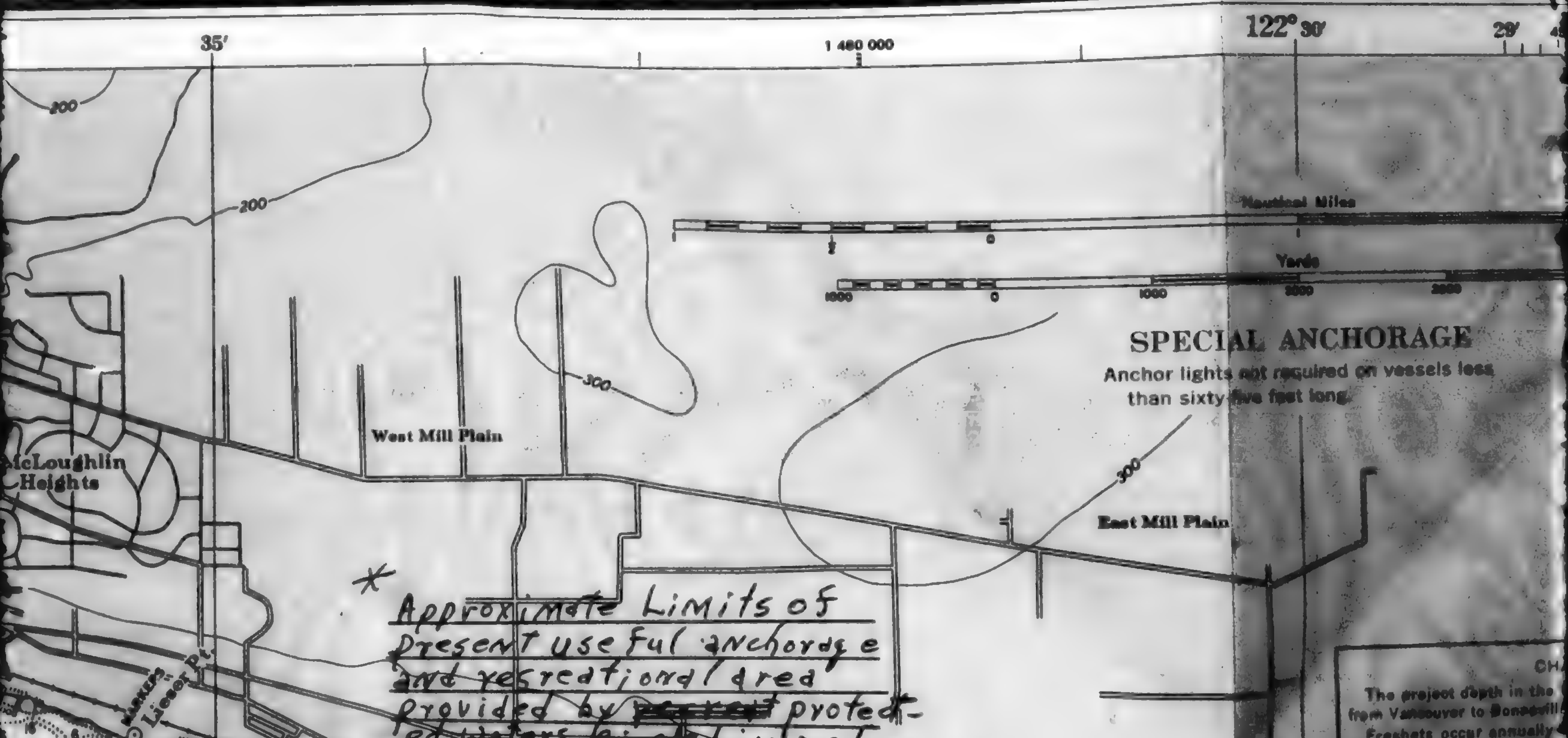
UNITED
OREGON

# COLU

# VANCOUVE

1st

Mercator Projection
Scale 1:40,000 at Lat. 45° 35′



35′
1 480 000
122° 30′
29′
Nautical Miles
Yards
1000
0
1000
2000
3000
SPECIAL ANCHORAGE
Anchor lights not required on vessels less than sixty-five feet long.
West Mill Plain
East Mill Plain
McLoughlin Heights
Ellsworth
Lieser Pt.
MARKERS
MEASURED NAUTICAL MILE COURSE 107
AIRPORT BAR
Lower Pt
Sand Island
Lemon Island
SPECIAL ANCH 202.128 (see note)
GOV'T LOWER RANGE
GOV'T ISLAND MIDDLE RANGE
FISHER QUARRY CH
GOVERNMENT ISLAND
Columbia Slough
Fisher
Ferry
CHA
The project depth in the
from Vancouver to Bonnevill
Freshets occur annually
which may cause some sho
project depths as soon therea
The controlling depths are
by the U.S. Coast Guard and
to Mariners Additional infor
Engineers, U.S. Army, Portla

* Approximate Limits of present useful anchorage and recreational area provided by ~~present~~ protected waters circled in red.

Pre existing Sandbar Wing

Current Proposal

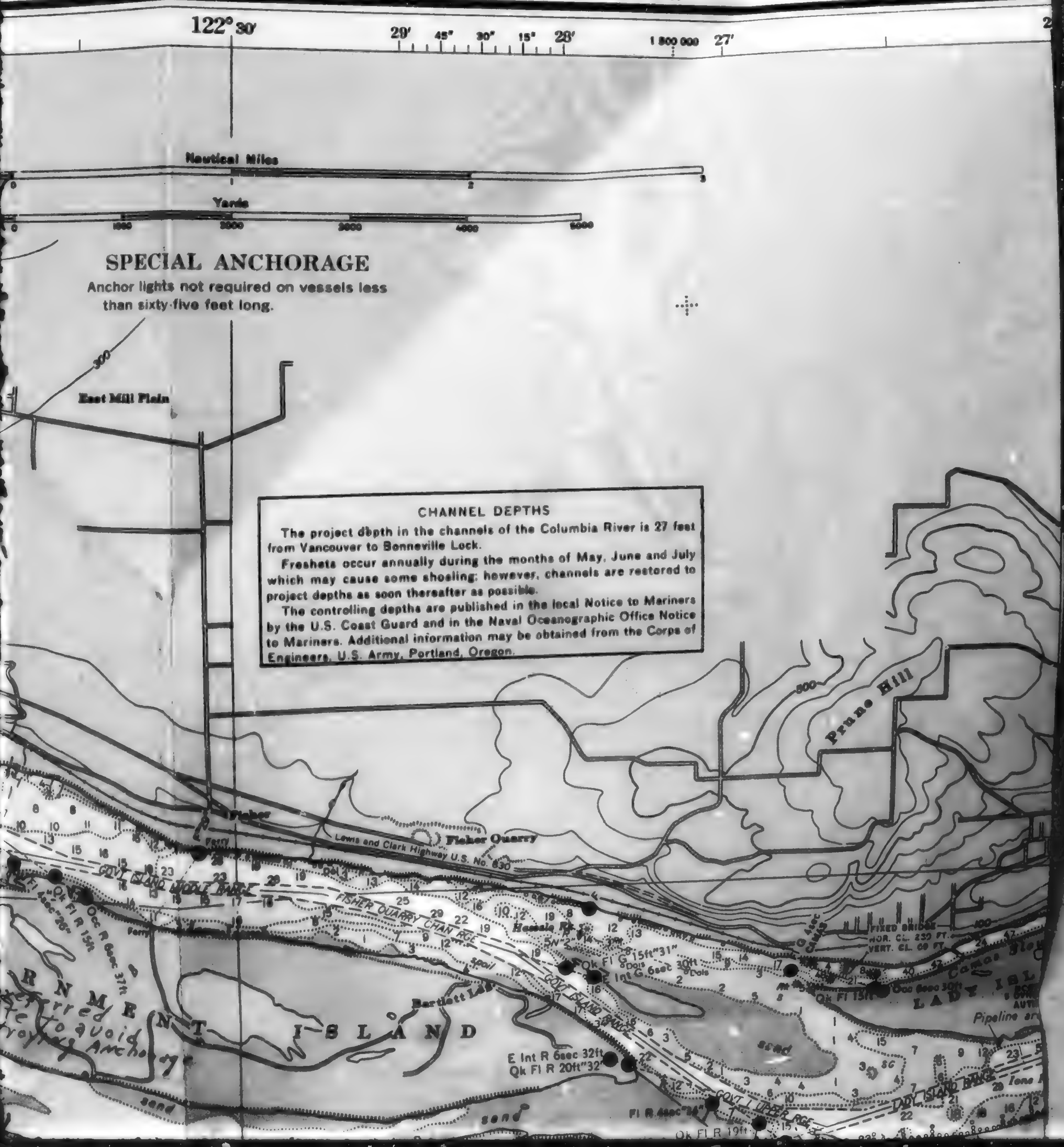
A preferred route to avoid destroying anchorage

UNITED STATES – WEST COAST
OREGON AND WASHINGTON

# COLUMBIA RIVER

## VANCOUVER TO BONNEVILLE

1st Combined Ed., Apr. 1953 G-1951-769


122° 30'
29'
45"
30"
15"
28'
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27'
Nautical Miles
0
1
2
3
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0
1000
2000
3000
4000
5000
300
East Mill Plain
Prune Hill
800
Fisher
Ferry
Fisher Quarry
Lewis and Clark Highway U.S. No. 830
GOV'T ISLAND MIDDLE RANGE
FISHER QUARRY CHAN RGE
Qk Fl R 15ft
Occ R 6sec 37ft
Hessie Pt
Qk Fl G 15ft "31"
E Int G 6sec 30ft
Dols
FIXED BRIDGE
HOR. CL. 230 FT.
VERT. CL. 60 FT.
Qk Fl 15ft
Occ 6sec 30ft
Camas Slough
LADY ISL
Pipeline
Bartlett Lake
RNMENT ISLAND
GOV'T ISLAND
spoil
sand
E Int R 6sec 32ft
Qk Fl R 20ft "32"
GOV'T UPPER RGE
LADY ISLAND RANGE
Fl R 4sec 26ft
Qk Fl R 19ft
ferred
te to avoid
Anchorage

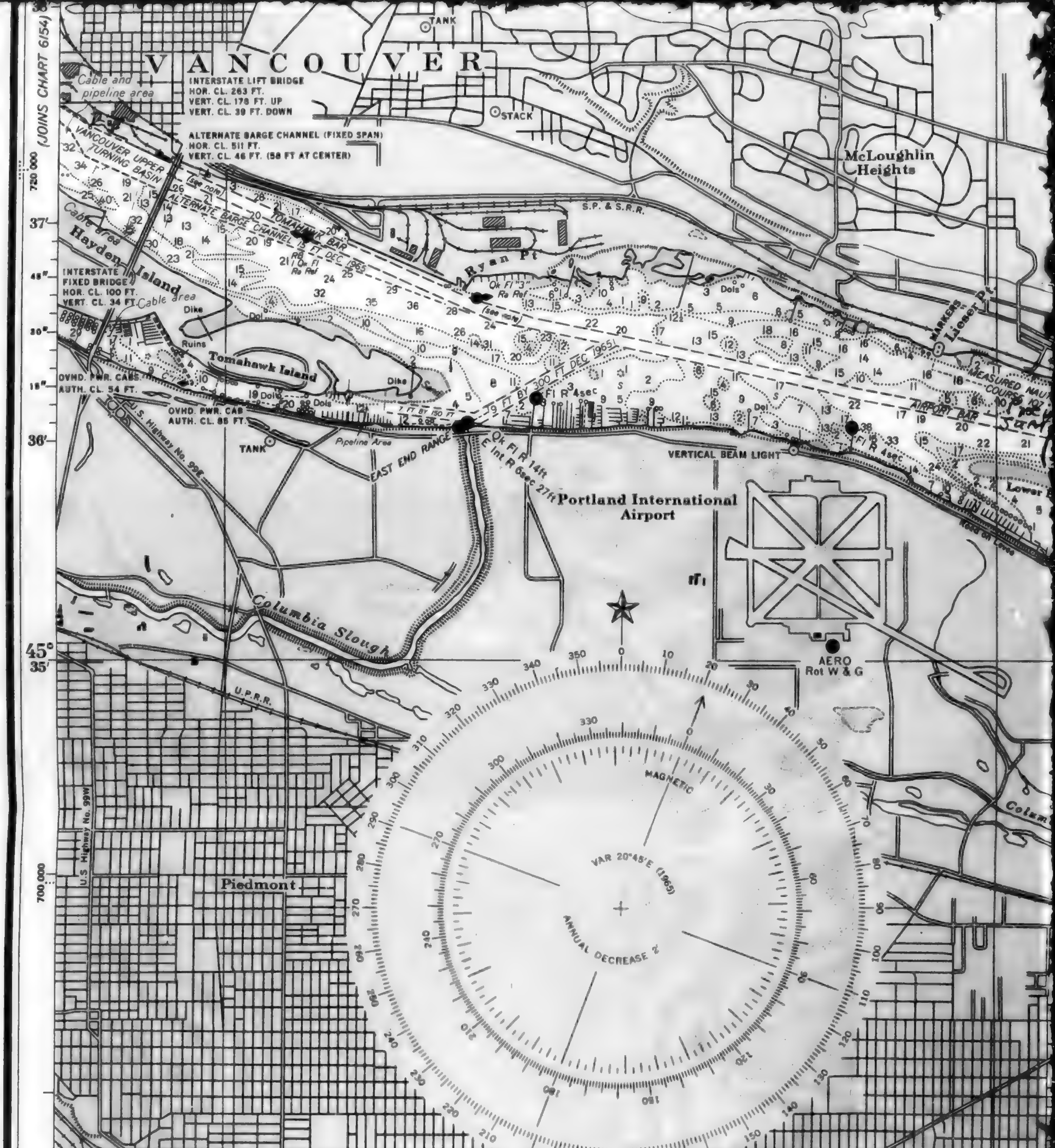
SPECIAL ANCHORAGE
Anchor lights not required on vessels less than sixty-five feet long.

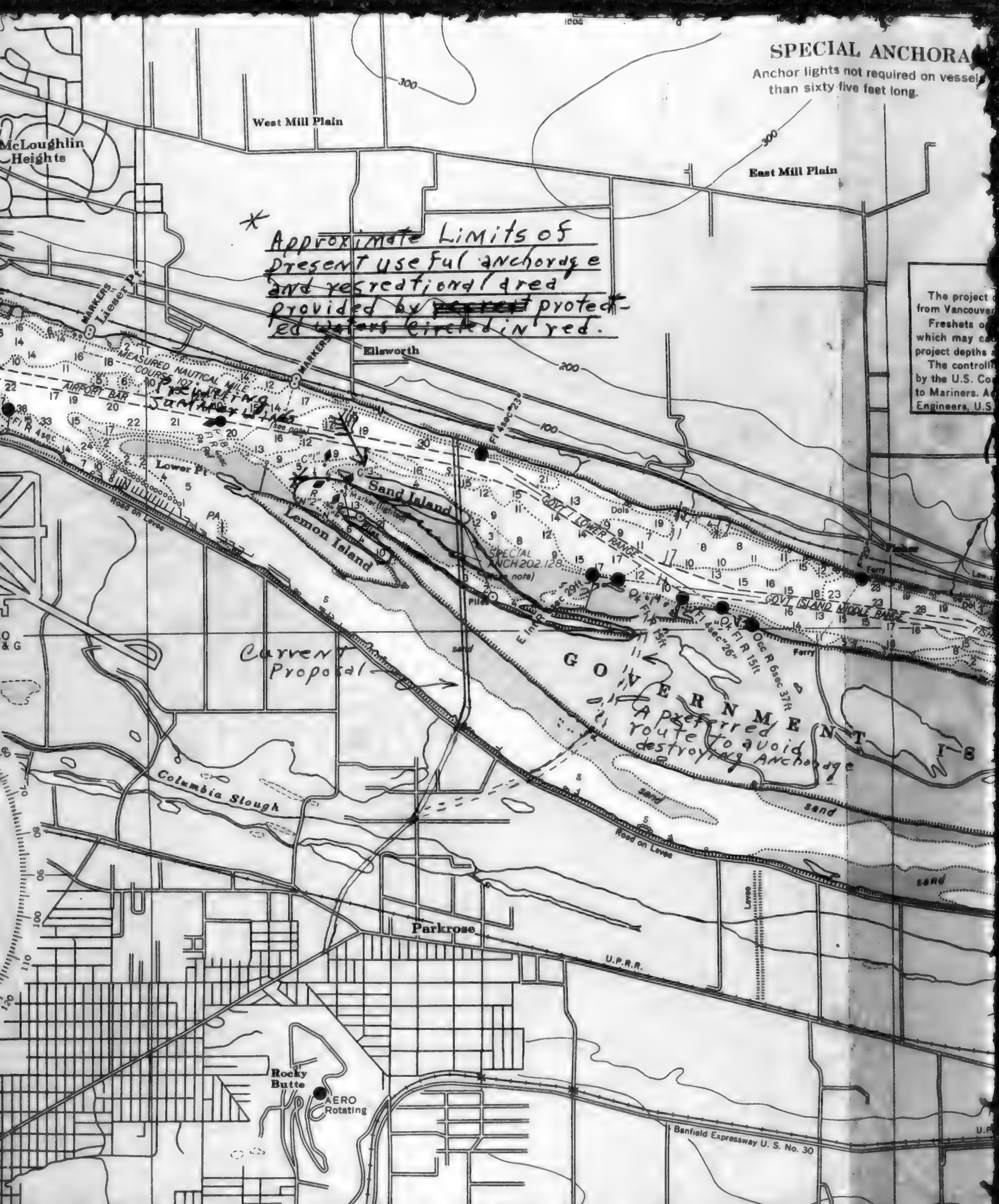
CHANNEL DEPTHS

The project depth in the channels of the Columbia River is 27 feet from Vancouver to Bonneville Lock.

Freshets occur annually during the months of May, June and July which may cause some shoaling; however, channels are restored to project depths as soon thereafter as possible.

The controlling depths are published in the local Notice to Mariners by the U.S. Coast Guard and in the Naval Oceanographic Office Notice to Mariners. Additional information may be obtained from the Corps of Engineers, U.S. Army, Portland, Oregon.


(JOINS CHART 6154)
VANCOUVER
TANK
STACK
Cable and pipeline area
INTERSTATE LIFT BRIDGE
HOR. CL. 263 FT.
VERT. CL. 178 FT. UP
VERT. CL. 39 FT. DOWN
ALTERNATE BARGE CHANNEL (FIXED SPAN)
HOR. CL. 511 FT.
VERT. CL. 46 FT. (58 FT AT CENTER)
VANCOUVER UPPER TURNING BASIN
(see note)
ALTERNATE BARGE CHANNEL 15 FT DEC 1965
TOMAHAWK BAR
Cable area
Hayden Island
INTERSTATE FIXED BRIDGE
HOR. CL. 100 FT.
VERT. CL. 34 FT.
Cable area
Dike
Dol
Ruins
Tomahawk Island
OVHD. PWR. CABS.
AUTH. CL. 54 FT.
OVHD. PWR. CAB
AUTH. CL. 85 FT.
U.S. Highway No. 99E
TANK
Pipeline Area
EAST END RANGE
Qk Fl R 14ft
Int R 6sec 27ft
Fl R 4sec
9 FT BY 300 FT DEC 1965
S.P. & S.R.R.
Ryan Pt
Qk Fl "3"
Ra Ref
McLoughlin Heights
MARKERS
Lieser Pt
MEASURED NAUTICAL COURSE
AIRPORT BAR
Fl R 4sec
VERTICAL BEAM LIGHT
Portland International Airport
Lower
Reed or Loews
AERO
Rot W & G
Columbia Slough
Colum
U.P.R.R.
U.S. Highway No. 99W
Piedmont
MAGNETIC
VAR 20°45'E (1965)
ANNUAL DECREASE 2'
WILLAMETTE RIVER
PORTLAND
37'
36'
45° 35'
720 000
700 000
1 440 000
40'
1 460 000
35'

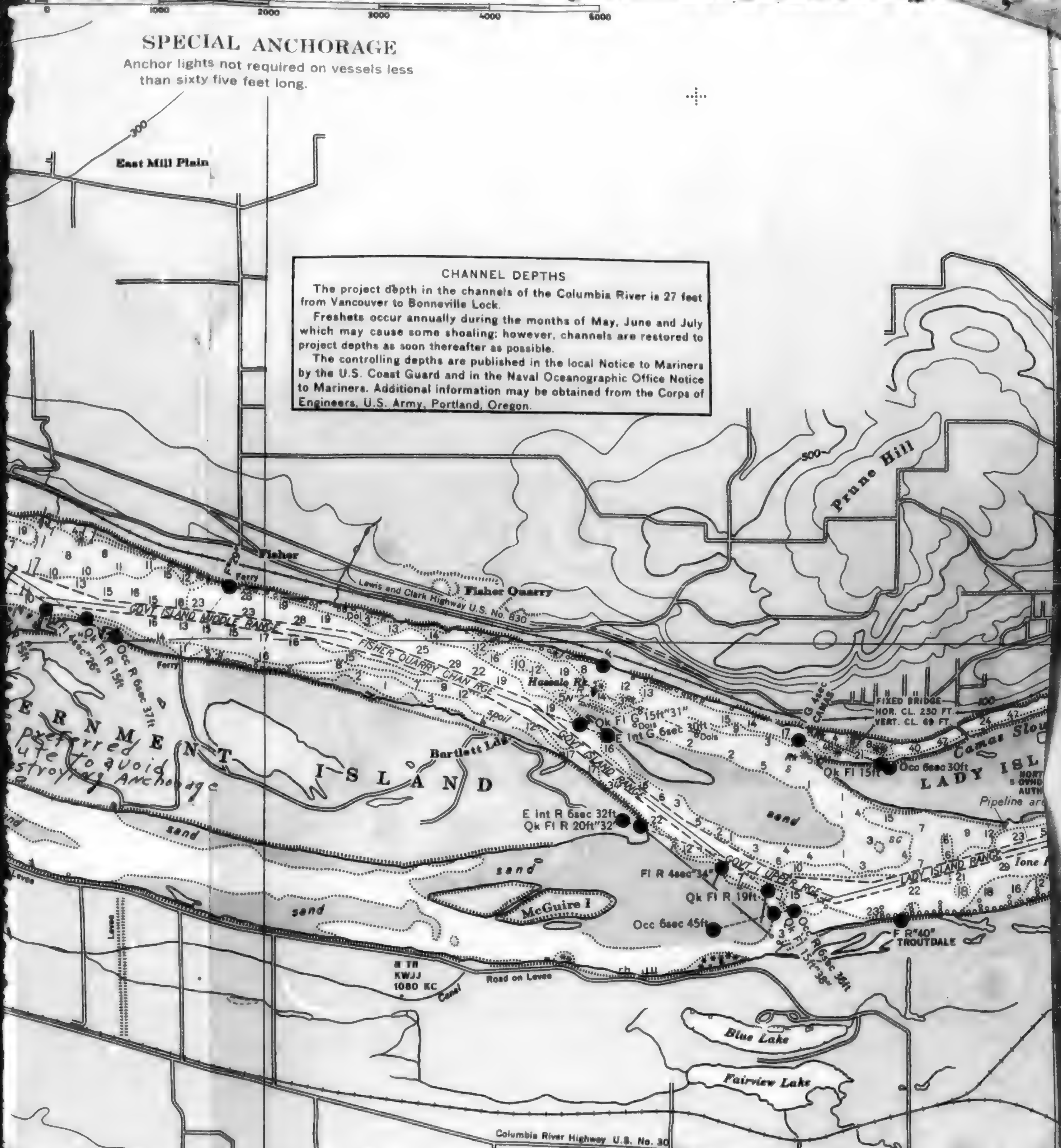

SPECIAL ANCHORA
Anchor lights not required on vessel
than sixty five feet long.
The project
from Vancouver
Freshets o
which may ca
project depths a
The controlli
by the U.S. Co
to Mariners. A
Engineers, U.S
West Mill Plain
East Mill Plain
McLoughlin Heights
Lieser Pt.
MARKERS
Ellsworth
MEASURED NAUTICAL MILE COURSE 107
AIRPORT BAR
Lower Pt
Sand Island
Lemon Island
Marker (lighted)
SPECIAL ANCH 202.128 (see note)
GOVT LOWER RANGE
GOVT ISLAND MIDDLE RANGE
G O V E R N M E N T I S
Dols
Pile
Ferry
Fisher
sand
Road on Levee
Columbia Slough
Parkrose
U.P.R.R.
Levee
Rocky Butte
AERO Rotating
Banfield Expressway U. S. No. 30
300
200
100
35′
1 480 000
122° 30′

* Approximate Limits of present useful anchorage and recreational area provided by [illegible] protected waters circled in red.

Preexisting Sanitary Lines

Current Proposal

A preferred route to avoid destroying Anchorage



SPECIAL ANCHORAGE

Anchor lights not required on vessels less than sixty five feet long.

CHANNEL DEPTHS

The project depth in the channels of the Columbia River is 27 feet from Vancouver to Bonneville Lock.

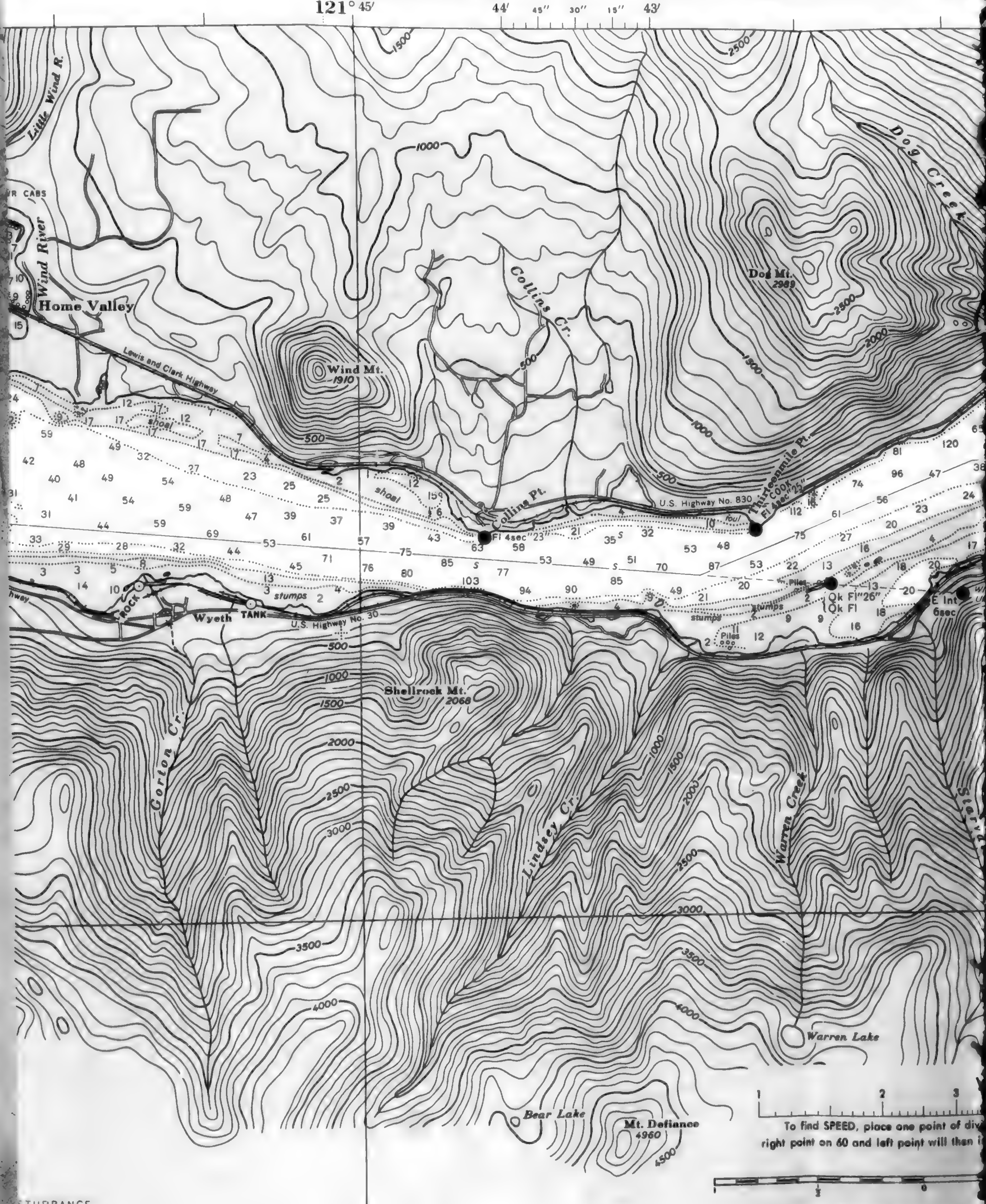
Freshets occur annually during the months of May, June and July which may cause some shoaling; however, channels are restored to project depths as soon thereafter as possible.

The controlling depths are published in the local Notice to Mariners by the U.S. Coast Guard and in the Naval Oceanographic Office Notice to Mariners. Additional information may be obtained from the Corps of Engineers, U.S. Army, Portland, Oregon.

preferred route to avoid destroying Anchorage

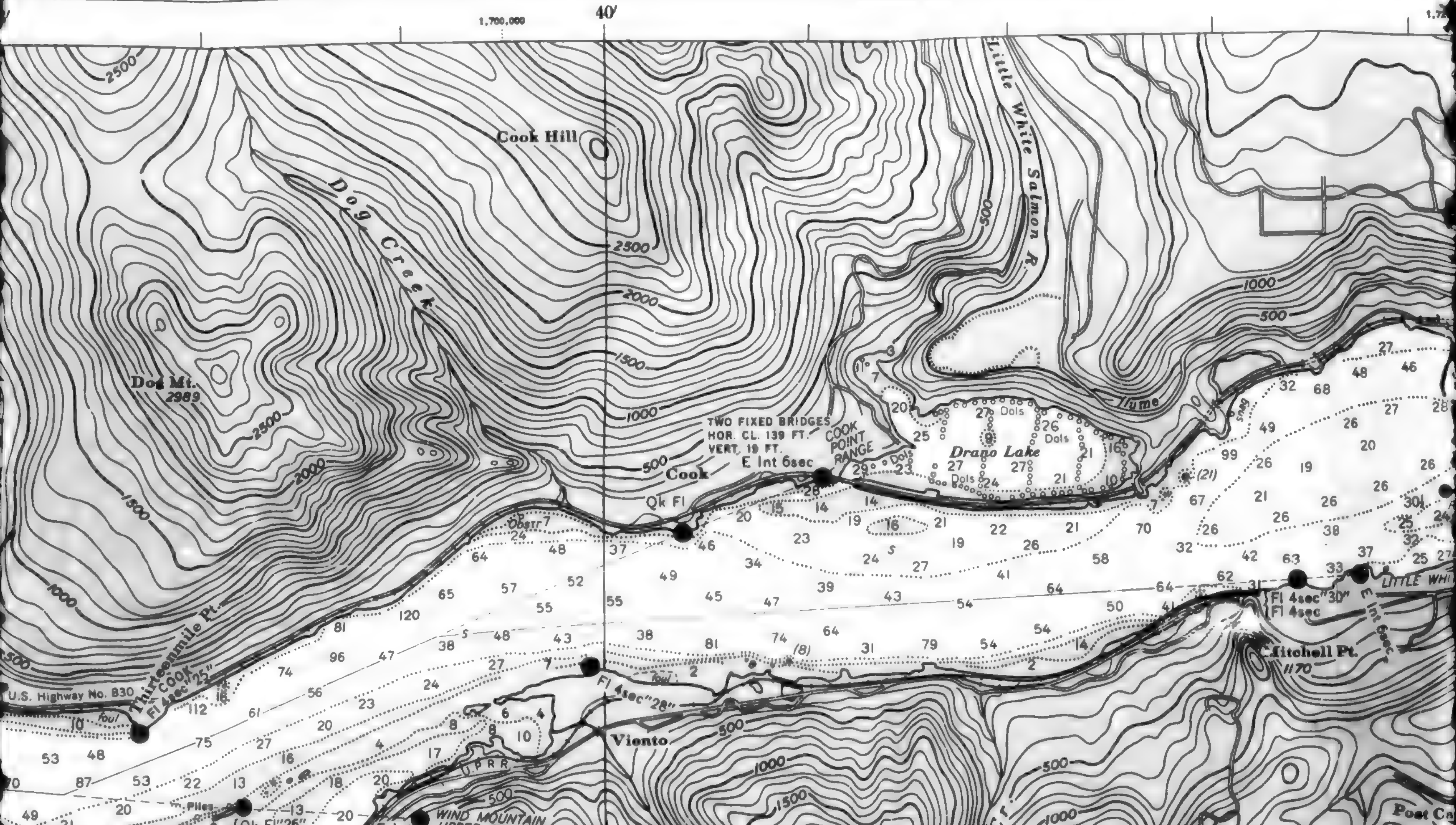
0
1000
2000
3000
4000
5000
300
East Mill Plain
500
Prune Hill
Fisher
Ferry
Fisher Quarry
Lewis and Clark Highway U.S. No. 830
GOVT ISLAND MIDDLE RANGE
FISHER QUARRY CHAN RGE
Qk Fl R 15ft
Occ R 6sec 37ft
4sec 26
Hessala Rk
Qk Fl G 15ft 31
E Int G 6sec 30ft
Dols
spoil
Bartlett Ldg
GOVT ISLAND RANGE
ERNMENT ISLAND
G 4sec
Camas
FIXED BRIDGE
HOR. CL. 230 FT.
VERT. CL. 69 FT.
Qk Fl 15ft
Occ 6sec 30ft
Camas Slou
LADY ISL
Pipeline
E Int R 6sec 32ft
Qk Fl R 20ft 32
sand
Fl R 4sec 34
GOVT I UPPER RGE
LADY ISLAND RANGE
Ione
Qk Fl R 19ft
Occ 6sec 45ft
Qk Fl 15ft 30
Occ R 6sec 30ft
F R 40
TROUTDALE
McGuire I
R TR
KWJJ
1080 KC
Road on Levee
Canal
Levee
Blue Lake
Fairview Lake
Columbia River Highway U.S. No. 30
U.P.R.R.
Banfield Expressway U.S. No. 30
100
200
300
Fairview
Wood Village
1 500 000
122° 30′
25

1st Combined Ed., Apr. 1953 C-1941-555

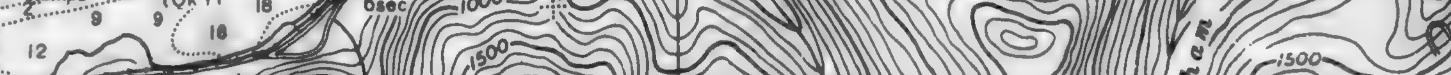

121° 45′
44′
45″
30″
15″
43′
Little Wind R.
Wind River
R CABS
Home Valley
Lewis and Clark Highway
Wind Mt.
1910
Collins Cr.
Collins Pt.
Fl 4sec "23"
Dog Creek
Dog Mt.
2989
Thirteenmile Pt.
COOK
Fl 4sec "25"
U.S. Highway No. 830
shoal
foul
stumps
Piles
Qk Fl "26"
Qk Fl
E Int 6sec
ROCK
Wyeth
TANK
U.S. Highway No. 30
Shellrock Mt.
2068
Gorton Cr.
Lindsey Cr.
Warren Creek
Starvation
Warren Lake
Bear Lake
Mt. Defiance
4960
500
1000
1500
2000
2500
3000
3500
4000
4500

To find SPEED, place one point of div
right point on 60 and left point will then i

STURBANCE
as 6° from the
observed along
a River shown


40′
1,700,000
Cook Hill
Dog Creek
Dog Mt.
2989
Little White Salmon R.
Drano Lake
Flume
Dols
TWO FIXED BRIDGES
HOR. CL. 139 FT.
VERT. 19 FT.
COOK POINT RANGE
Cook
E Int 6sec
Qk Fl
Thirteenmile Pt.
COOK
Fl 4sec "25"
U.S. Highway No. 830
Fl 4sec "28"
Viento
UPRR
WIND MOUNTAIN UPPER RANGE
E Int 6sec
Qk Fl "26"
Qk Fl
Piles
stumps
Fl 4sec "30"
Fl 4sec
E Int 6sec
LITTLE WHITE
Mitchell Pt.
1170
Post Cr
Perham Cr.
Viento Cr.
Starvation Cr.
Warren Creek
Warren Lake
2178
3500
1000
1500
2000
2500
3000
3500
4000

LOGARITHMIC SPEED SCALE

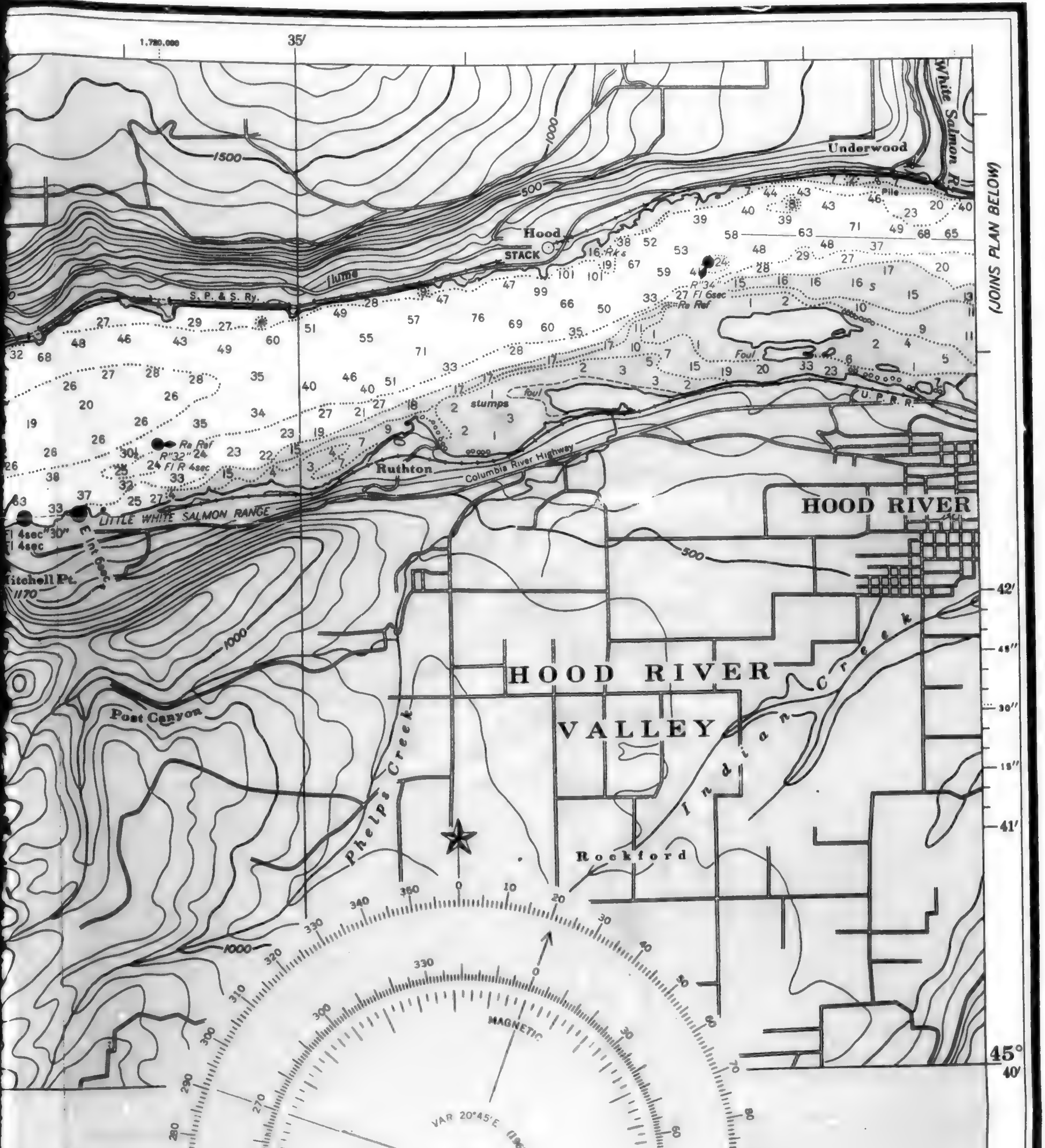

1
2
3
4
5
6
7
8
9
10
15
20
25
30
40
50
60

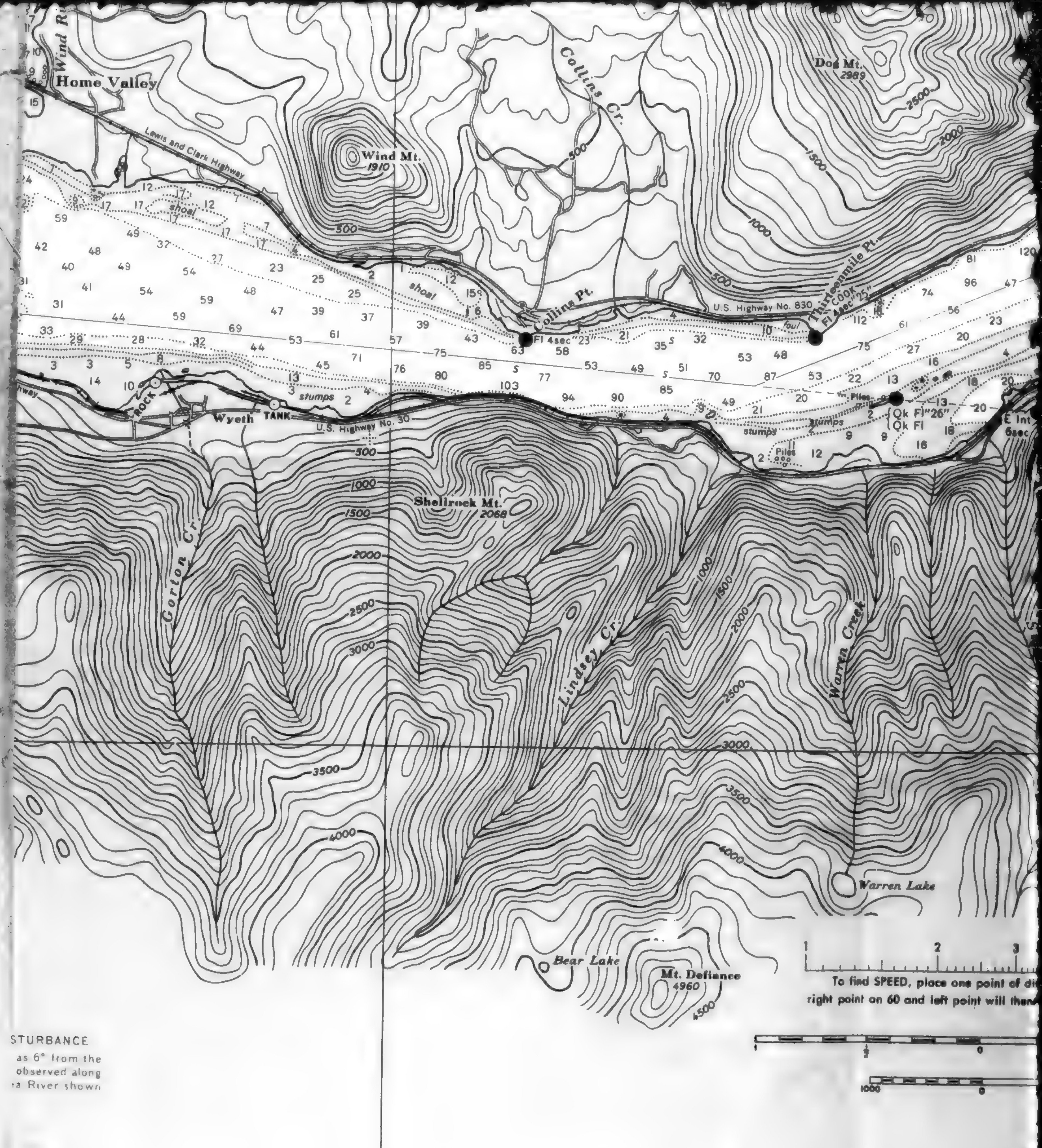
To find SPEED, place one point of dividers on nautical miles run and the other on minutes run. Without changing divider spread, place right point on 60 and left point will then indicate speed in knots. Example: with 4.0 miles run in 15 minutes, the speed is 16.0 knots.

Nautical Miles

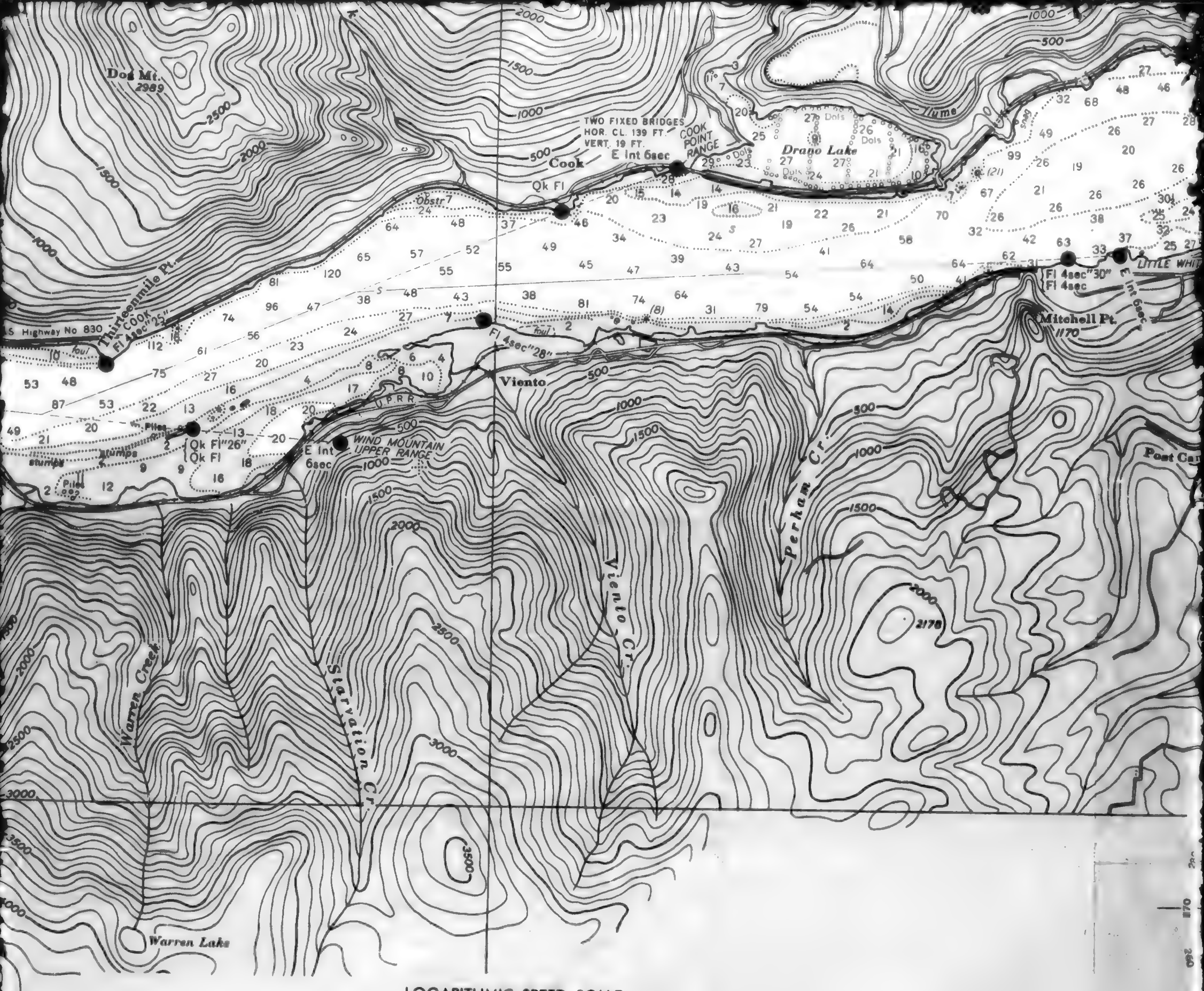
Yards

1000
0
1000
2000
3000
4000
5000

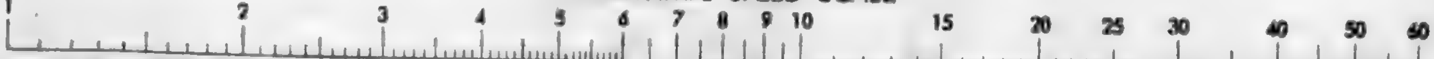

1,780,000
35′
White Salmon R.
(JOINS PLAN BELOW)
Underwood
1500
1000
500
Hood
STACK
flume
S. P. & S. Ry.
Pile
Rks
R"34"
Fl 6sec
Ra Ref
Foul
foul
stumps
U. P. R. R.
Ruthton
Columbia River Highway
Ra Ref
R"32"
Fl R 4sec
LITTLE WHITE SALMON RANGE
Fl 4sec"30"
Fl 4sec
E Int 6sec
Mitchell Pt.
1170
HOOD RIVER
42′
45″
30″
15″
41′
HOOD RIVER VALLEY
Indian Creek
Phelps Creek
Post Canyon
Rockford
MAGNETIC
VAR 20°45′E (1965)
ANNUAL DECREASE 2′
45°
40′
720,000



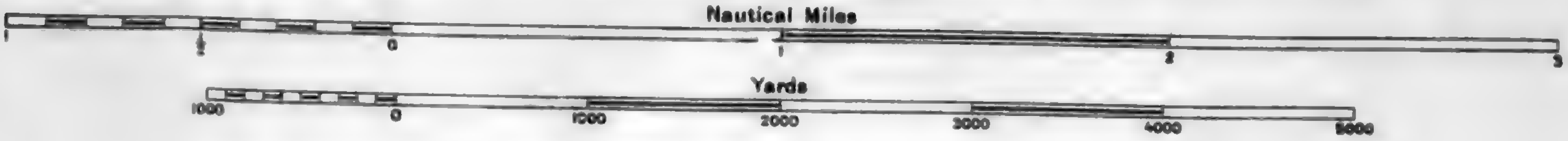
Wind R.
Home Valley
Lewis and Clark Highway
Wind Mt.
1910
Collins Cr.
Dog Mt.
2989
shoal
Collins Pt.
Fl 4sec "23"
Thirteenmile Pt.
COOK
Fl 4sec "25"
U.S. Highway No. 830
foul
stumps
Piles
Qk Fl "26"
Qk Fl
E Int
6sec
ROCK
Wyeth
TANK
U.S. Highway No. 30
Shellrock Mt.
2068
Gorton Cr.
Lindsey Cr.
Warren Creek
Warren Lake
Bear Lake
Mt. Defiance
4960
500
1000
1500
2000
2500
3000
3500
4000
To find SPEED, place one point of di
right point on 60 and left point will then
STURBANCE
as 6° from the
observed along
ia River shown
121° 45′
44′
45″
30″
15″
43′
1,790,000
20′
19′
18′
1,800,000


Dog Mt.
2989
Thirteenmile Pt.
COOK
Fl 4sec"25"
Highway No 830
TWO FIXED BRIDGES
HOR. CL. 139 FT.
VERT. 19 FT.
COOK POINT RANGE
Cook
E Int 6sec
Qk Fl
Drano Lake
Dols
Flume
LITTLE WHITE
Fl 4sec"30"
Fl 4sec
E Int 6sec
Mitchell Pt.
1170
Fl 4sec"28"
Viento
U.P.R.R.
Piles
Stumps
Qk Fl"26"
Qk Fl
E Int
6sec
WIND MOUNTAIN
UPPER RANGE
Perham Cr.
Viento Cr.
Starvation Cr.
Warren Creek
Warren Lake
Post Ca
2178
3500
2000
2500
3000
1500
1000
500

## LOGARITHMIC SPEED SCALE


1
2
3
4
5
6
7
8
9
10
15
20
25
30
40
50
60

To find SPEED, place one point of dividers on nautical miles run and the other on minutes run. Without changing divider spread, place right point on 60 and left point will then indicate speed in knots. Example: with 4.0 miles run in 15 minutes, the speed is 16.0 knots.


Nautical Miles
1
½
0
1
2
3
Yards
1000
0
1000
2000
3000
4000
5000

1,700,000

40′

[illegible]

121° 15′

[illegible]

ABBREVIATIONS (For complete list of Symbols and Abbreviations, see C. & G. S. Chart No. 1):

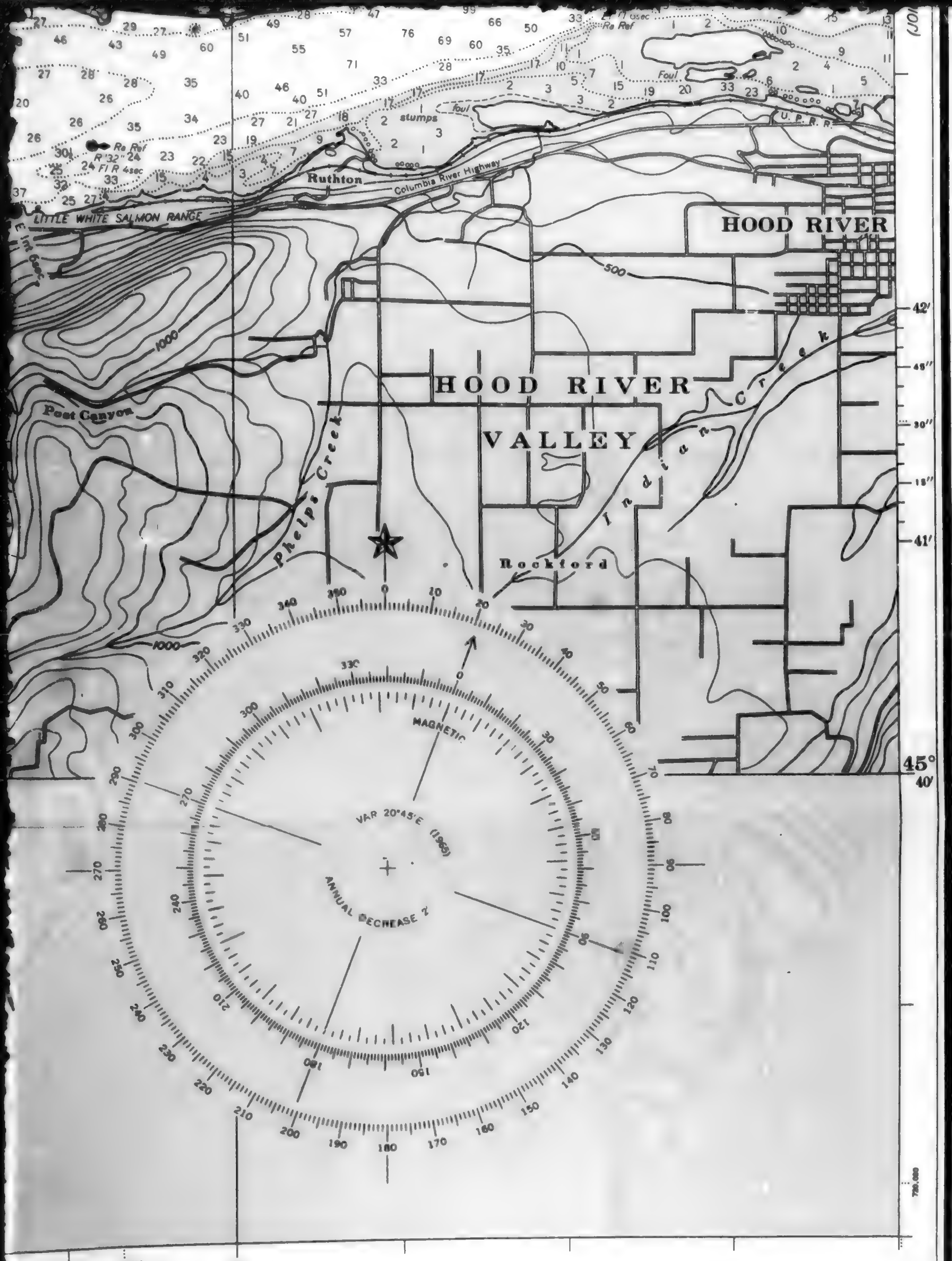
Lights (Lights are white unless otherwise indicated.):

F. fixed
Fl. flashing
Qk. quick
Gp. group
E. Int. equal interval

Mo. (A) morse code
Occ. occulting
Alt. alternating
I. Qk. interrupted quick

OBSC. obscured
WHIS. whistle
DIA. diaphone
M. nautical miles

Rot. rotating
SEC. sector
m. minutes
sec. seconds


HOOD RIVER
HOOD RIVER
VALLEY
Ruthton
Columbia River Highway
U.P.R.R.
LITTLE WHITE SALMON RANGE
Post Canyon
Phelps Creek
Indian Creek
Rockford
stumps
Foul
Re Ref
Fl R 4sec
R "32"
500
1000
42'
41'
45°
40'
35'
10'
1,780,000
1,840,000
780,000
MAGNETIC
VAR 20°45'E (1965)
ANNUAL DECREASE 2'

8705

RECEIVED
JUN 12 1967

FOR FILING

SP*23401-734

**OREGON STATE HIGHWAY DEPARTMENT**

INTER-DEPARTMENT CORRESPONDENCE

Salem, Oregon
June 8, 1967

SUBJECT:

To: Tom Edwards
Assistant State Highway Engineer

F. B. Klaboe
Assistant State Highway Engineer

OFFICE

After discussion with the Highway Commission on the listed items, the following action was taken:

(1) After listening to the expected presentation by the Clackamas County Commission on relocation between Lake Road and Lester Avenue on I-205, we are to inform all parties that the Commission will stand on the location as now proposed.

(2) There will be no change in the West Pendleton Interchange unless some reconsideration is requested by a local governing body.

(3) On the sand shed problem in the Siskiyous, the Commission directed that we proceed as we are now with the present sand shed, which will require the acquisition of the small parcel between the sand shed property and the old road.

(4) Until the location of the Columbia River Bridge on I-205 is settled, right-of-way in Maywood Park should be acquired on a hardship basis only.

R. L. Porter
Deputy State Highway Engineer

RLP:ms
cc Forrest Cooper
Victor D. Wolfe

NOTED
TOM EDWARDS

8905

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APR 16 1968
FOR FILING

6-6-67

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
SEATTLE AREA OFFICE
FAA BUILDING, BOEING FIELD
SEATTLE, WASHINGTON 98108

Klaboe
cc

REFERRED TO
admin
BY SECRETARY

B/up 10/2

IN REPLY REFER TO: SEA-500

AIRSPACE CASE SEA-OE-66-172

NOTICE OF TERMINATION OF STUDY

Cancel

On October 3, 1966, the Federal Aviation Administration circularized to known interested persons a proposal by the State of Oregon Highway Department to construct an Interstate Highway Bridge over the Columbia River for Highway I-205. The construction was to begin at a point 3700 feet east of the approach end of Runway 28R at the Portland International Airport, thence in a northerly direction to a point 9600 feet north-northeast of the approach end of Runway 28R on the north bank of the Columbia River.

On March 8, 1967, the proposal was altered to amend the elevation of the bridge at the south shore of the Columbia River and was again circularized for aeronautical comment.

Subsequent to these circularizations, the proponent has advised the FAA that they now plan further alterations to the proposed bridge, both in elevation and location.

It has been determined by the FAA, with concurrence of the Oregon State Highway Department, that the study as described in SEA-OE-66-172 be terminated and that a new study be initiated when the new location has been determined.

Therefore, the aeronautical study SEA-OE-66-172 is hereby terminated.

Fred S. McKnight
Fred S. McKnight
Chief, Air Traffic Branch

Issued in Seattle, Washington on June 6, 1967

~~7-20-67~~ 8-
~~6-19-67~~

REFERRED TO
Edw - Marchant - ~~Morgan~~
Johnson
BY ASST. STATE HWY. ENGR.

RECEIVED
JUN 8 1967
OFFICE OF
STATE HIGHWAY ENGINEER

RECEIVED
JUN 8 1967
OREGON
STATE HIGHWAY COMMISSION

NOTED
F. B. KLABOE

Please resubmit application to FAA when we have set clearances.

RECEIVED
MAY 26 1967

10-65 SP*23401-734

FOR FILING
Cont
[illegible]
EPF

**OREGON STATE HIGHWAY DEPARTMENT**

INTER-DEPARTMENT CORRESPONDENCE

Salem, Oregon
May 24, 1967

SUBJECT:

To: Memo to File

On May 23, I was asked to meet with Mr. Branchfield and a group of people representing small boating interests concerning the proposed I-205 Columbia River Bridge. Those present were:

Edward G. Westerdahl, II ) Governor's Office
Edward Branchfield )

State Representative Connie McCready

Roland Calkins, President, Columbia River Yacht Assn.
Reuben Getz, Vice President, " " " "
Howard Cunningham, Commodore, Portland Yacht Club

The discussion centered around the dissatisfaction of the yacht people about having the I-205 bridge in the vicinity of Tri Club Island. This is a small island near the westerly end of Government Island, between that island and the main channel. According to the boating people, it is owned by several boat clubs, is maintained in its natural state, and the southerly side thereof is used as a refuge and mooring basin. It was their thinking that the I-205 bridge will destroy the serenity, the landscape, and will actually create a hazard to the use and occupancy of the island and mooring basin. They requested that the bridge be moved at least a mile easterly. I explained that such a move would probably kill the whoe project and we could not agree to such a request.

The boating people stated that they would appear at the navigational hearing Thursday and ask for a 68-foot channel clearance and offer testimony opposing the project. They also plan to appear at the next Highway Commission meeting to give their story to the Commission directly.

The meeting was not unfriendly; however, it appears there is little we can do in this vicinity that will meet with their approval. Mr. Westerdahl, particularly, held his ground very well and gave no indication that the Governor would support the position of the yacht clubs.

R.L.P.

R. L. Porter
Deputy State Highway Engineer

RLP:ms
cc Forrest Cooper
Tom Edwards
F. B. Klaboe
Victor D. Wolfe
I. D. Merchant
R. B. Sipprell

3905

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MAY 25 1967
FOR FILING

Commissioners
HAROLD S. HIRSCH
*President*
LEE E. CALDWELL
*Vice-President*
JOHN S. BRANDIS
*Secretary*
DONALD G. DRAKE
*Treasurer*
DENNIS J. LINDSAY
LEWIS S. RUSSELL
HOWARD B. SOMERS
ERLING E. JACOBSEN
ROBERT B. WILSON

*General Manager*
GEORGE M. BALDWIN

*Ass't. General Manager*
R. A. NEUMEISTER

*Acting Mgr. Aviation Dept.*
H. M. HANNA

*Mgr., Industrial Development Dept.*
L. E. ARNOLD, JR.

*Mgr., Marine Dept.*
A. J. HEINEMAN

*Comptroller*
E. W. BAUER

*Mgr., Research and Planning Dept.*
W. S. DIRKER

*Chief Engineer*
R. F. DOW

*Mgr., Public Affairs Dept.*
W. G. PROCTOR

THE PORT OF PORTLAND

P.O. Box 3529, Portland, Oregon 97208
Telephone (503) 224-4260

May 17, 1967

Copy to [illegible]
5-18-67

Mr. Glenn L. Jackson, Chairman
Oregon State Highway Commission
c/o Pacific Power & Light Company
920 S.W. Sixth Avenue
Portland, Oregon

Dear Mr. Jackson:

I promised you at the informal meeting held between members of the Oregon State Highway Commission and The Port of Portland Commission on Thursday evening, May 11, (in which there was an absence of a quorum of the Port Commissioners) that I would have for you by today, Wednesday, May 17, conclusive word from the Port Commission regarding the Highway Commission's compromise proposal to move the I-205 Columbia River bridge location 1200 feet farther east so as not to unreasonably restrict the eastward extension of Portland International Airport's North runway. We telephoned your office today and learned that you wouldn't be back in Portland until late today. Therefore, this letter is being delivered to you so you may have the Port's answer today nevertheless.

Had the drawing delivered by the Highway Commission's staff yesterday, May 16, adhered to the bridge positioning on the aerial photograph (per lines we pasted thereon at our informal discussion May 11) which indicated a 1200 foot eastward move of the bridge, so as to just clear the easterly edge of the airport's extended clear zone, this would have been acceptable to the Port. However, the aforementioned Oregon State Highway drawing shows a bridge alignment which angles through the clear zone to such an extent that it materially restricts the runway extension. Were the bridge to be constructed in the location shown on your drawing, and at the proposed elevation to provide a 48-foot channel clearance, the maximum allowable airport runway extension would only be 1870 feet instead of the 2500 feet we need. This, therefore, is inadequate and unacceptable.

The Port's request was for a bridge location that would permit a runway extension of 2500 feet with a 48-foot channel clearance, a minimum of a 50:1 approach slope, and a 17-foot clearance above

NOT
ORRES

cc: Cooper
Bridge
Edwards
Klaboe

Brought to the office
by Mr Jackson 5-18.
Mr Jackson was [illegible]

the bridge deck. The Port would prefer a 100:1 slope to provide an additional safety factor (which would have meant a 3600-foot eastward move of the bridge instead of 1200 feet), but will accept the 50:1 slope which meets the minimum FAA requirements.

Based on the tentative alignment pasted on the aerial photograph at our meeting, and the discussion at that time, the Port assumed that a runway extension of close to 2500 feet would be possible. This pasted alignment provided for the centerline of the bridge to be moved approximately 1200 feet east. However, in the interest of showing its good faith, the Port was and still is willing to accept that 1200 foot change, but must insist that the centerline of the bridge not encroach more than 100 feet into any part of the clear zone applicable to a 2500-foot runway extension. It should be noted that such an encroachment would restrict the runway extension to 2,295 feet, and this is the minimum acceptable to the Port and constitutes the maximum compromise the Port can make.

I repeat, the 1200 feet eastward move of the bridge proposed at our meeting would achieve this providing the bridge is not angled or curved to encroach more than 100 feet into the clear zone. The 100-foot tolerance is provided as further indication of our efforts to accommodate our needs to the Oregon State Highway Commission's I-205 bridge problem.

Sincerely,

THE PORT OF PORTLAND COMMISSION

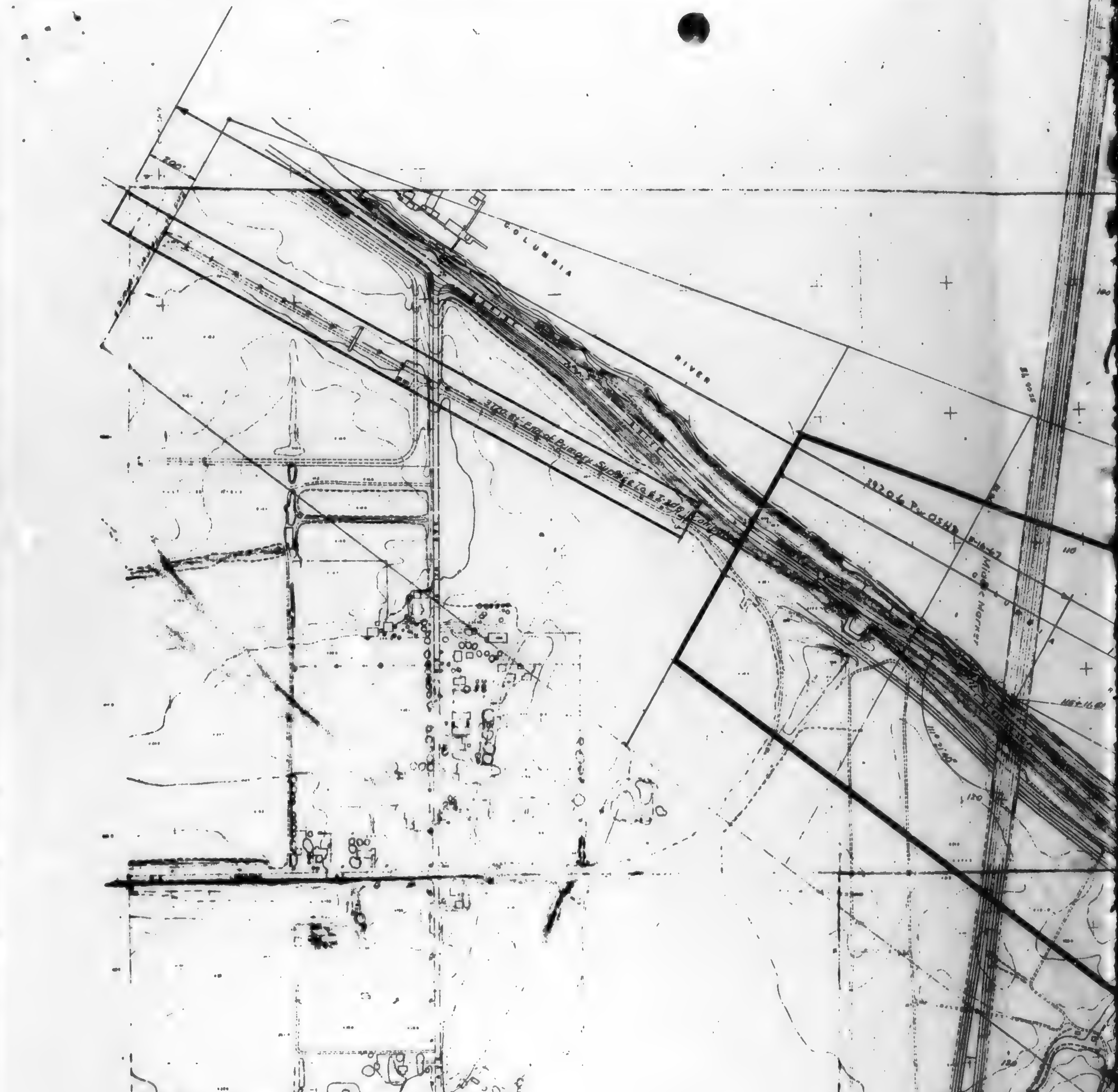
Harold S Hirsch

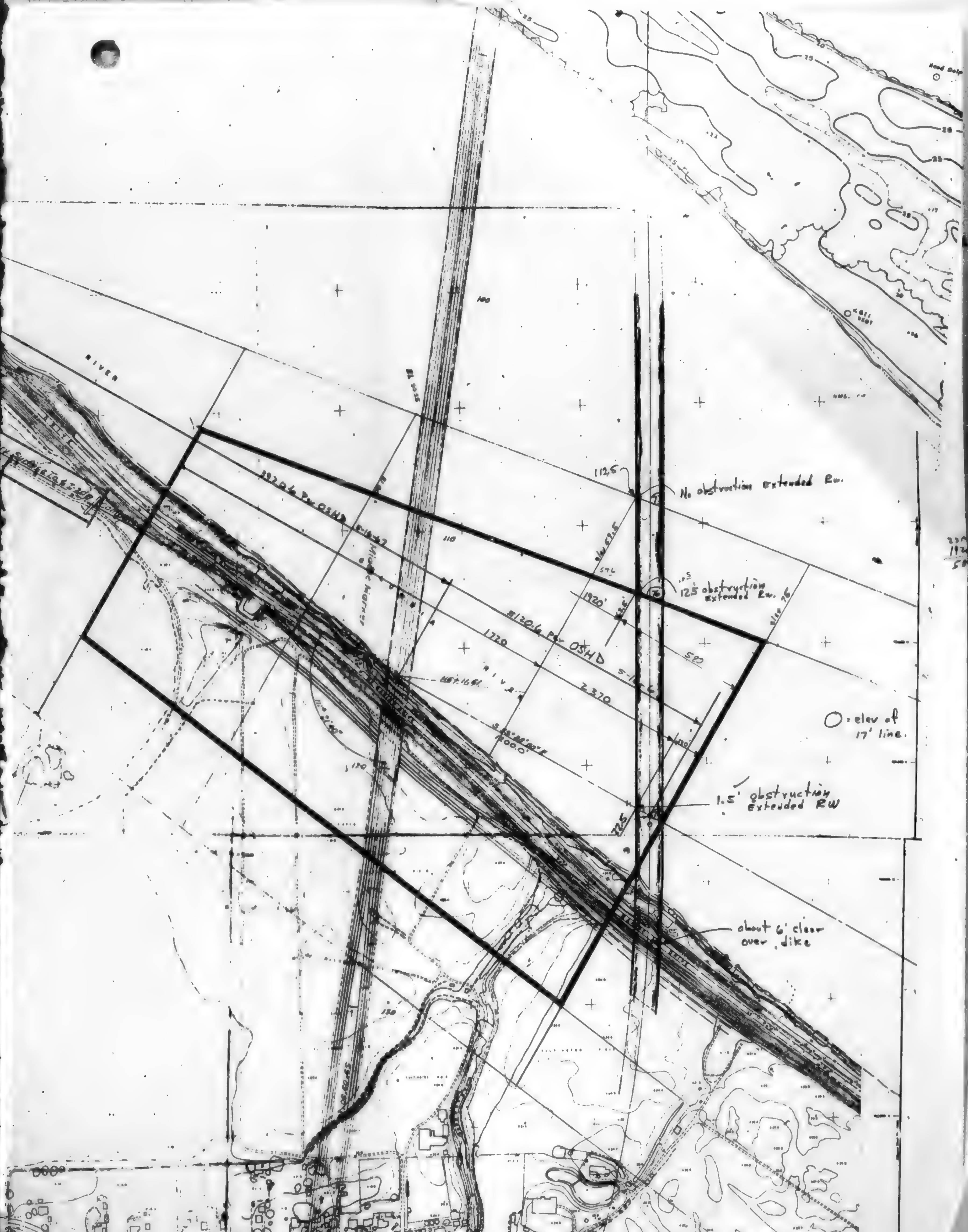
HAROLD S. HIRSCH
President

HSH:md

cc: Port of Portland Commissioners

Enclosures - Photocopies of the pasted-up aerial drawing used at the meeting of the two Commissions, and the base drawing obtained May 16 from the Oregon State Highway Commission's staff, with the 2500 foot clear zone and dimension lines drawn in by Port staff.


COLUMBIA
RIVER
200'
End of Primary Surface
Per OSHD 8-16-67
Mile Marker
100
110
120


RIVER
100
110
120
170
112.5
No obstruction extended Rw.
elev 59.5
59.6
1920'
12.5 obstruction extended Rw. 16
elev
580
5/20.6 Per OSHD
1720
2370
110'
O = elev of 17' line.
1.5' obstruction Extended RW
72.5
about 6' clear over dike
1920.6 Per OSHD
RIVER
1200.0'

8705

RECEIVED
MAY 24 1967
FOR FILI

NOTED
R. L. PORTER

MAY 15 1967

32-90

NOTED
FORREST COOPER

Mr. N. J. Barbare
1717 S. W. Park Avenue
Portland, Oregon 97201

Dear Mr. Barbare:

Mrs. Bess Abell, Social Secretary to Mrs. Johnson, has forwarded your letter of April 12 to us for further reply because the Bureau of Public Roads administers the Federal-aid highway program, including highway beautification.

Growing attention has been given in recent years to the social and esthetic impact of highways on our cities and countryside. In planning Federal-aid projects the States are required to give full consideration to the preservation of community resources such as wildlife, recreational areas and scenic sites, insofar as possible within the engineering and safety requirements of the highway. Extensive efforts are made in building highways to conserve as many of the natural amenities as possible, and to provide new and better landscaping within the right-of-way itself. You may be assured that the merits of the proposals the State made involving Federal participation in the proposed bridge over Government Island as a part of Interstate Route 205 were carefully considered to insure that full regard was given to its effect on the area traversed.

However, the final, precise location for the proposed bridge has not yet been decided. You probably know that the hearing which was set for May 4 was cancelled. It has been rescheduled for May 25 in the Bonneville Building. Since this is to be a public hearing, it would be an opportune time for you to present your views to the assembled authorities. (Check local authority for exact time and room number.)

You have suggested an alternate route for Interstate 5 around Portland. In general, Interstate routes pass both through and around the larger cities and bypass the smaller cities and towns. There is no standard pattern or rule for routings. Proper route designations can be determined only by detailed study of the needs and conditions of each city involved. Route requirements will vary according to area, population, business and industrial activity, topography, land use, future growth, volumes and types of traffic and existing highway facilities. Decisions regarding choice of alternate detailed locations studied for individual routes are based on considerations such as cost of construction and right-of-way, road-user costs and benefits, economic and social impact on the area traversed, design features and esthetic values.

We are enclosing for your information a copy of "America's Lifelines" which explains in some detail the role of the Federal Government in developing the Nation's highways.

Your interest in preservation of our country's natural beauty is appreciated.

Sincerely yours,

F. C. Turner

F. C. Turner
Director of Public Roads

Enclosure

RECEIVED
MAY 1 8 1967
OFFICE OF
STATE HIGHWAY ENGINEER

THE WHITE HOUSE
Washington

U.S. DEPT. OF TRANSPORTATION
1967 MAY 4 AM 9 58
OFFICE OF SECRETARY OF TRANSPORTATION
EXECUTIVE SECRETARIAT

e

April 28, 1967

Dear Mr. Barbare:

Mrs. Johnson asked me to thank you for your message.

She appreciates your concern for the roadway in your area and it was thoughtful of you to bring this situation to her attention.

Since resolution of this problem requires the attention of others than Mrs. Johnson, it would be inappropriate for her to intervene. However, in an effort to be helpful, we have forwarded your letter to proper government officials so that they may have the benefit of your observations, and you will receive a direct report from that office.

Mrs. Johnson welcomes your constructive interest in preserving the natural beauty of our land, and she hopes that our highways, roadways, and byways will enhance our countryside and not be destructive of nature's beauty.

With best wishes,

Sincerely,

Bess Abell
Social Secretary

Mr. N. J. Barbare
1717 S. W. Park Avenue
Portland, Oregon 97201

cc: Bureau of ~~Public Roads~~ Transp (For routine handling)

ad

02843

A 3
BPR

April 12, 1967

Mrs. Lyndon B. Johnson
The White House
Washington, D. C.

Dear Madam:

I read that you take an active interest in saving the beauty of the country's landscape.

The enclosed clipping shows present status of plans for a bridge over the Columbia River in the area east of Portland. This is part of a "corridor" road off US5 from south of Portland which rejoins US5 in Washington State north of Vancouver, the planned bridge crossing a magnificent open stretch of the Columbia River and encroaching upon a natural recreational and wild life area -Government Island.

This all can be avoided by continuing US5 due north in Oregon from its diversion point just south of Portland, keeping west of Portland. This is a direct route into Washington State through largely an industrial area and following a railway right of way to and over the Columbia River, rejoining US5 north of Vancouver. In fact, several miles of this construction north from the diversion point above mentioned are now under construction, a change from original plans due to traffic demands.

The above "corridor" in Oregon is pretty well committed, I understand, but this will serve well as an out of the city connection with US80N.

I thought you might possibly be interested in knowing about this situation. At any rate, I thank you for reading this letter.

Yours very truly,

N. J. Barbare
1717 SW Park Avenue
Portland, Oregon 97201

02843

# New Span Hearing Date Set

Army Engineers have called a 10 a.m. May 4, public hearing on proposals for an Oregon - to - Washington bridge over the lower end of Government Island in the Columbia River.

The meeting, in Room 36, State Office Buildig, is expected to draw federal, state, county and municipal government representatives, as well as commercial, industrial, civic, highway and water-and-air transportation delegates, said Col. William J. Talbott, Portland district engineer who will conduct the hearing.

Oral comments and arguments will be accepted, but "statements for the record" should be submitted in writing," Talbott said.

89105

May 9, 1967

## SYNOPSIS OF CORRESPONDENCE BETWEEN PORT OF PORTLAND AND OREGON STATE HIGHWAY DEPARTMENT

## NORTH UNIT, INTERSTATE 205 - MULTNOMAH COUNTY

1. Oct. 26, 1964: Letter from Baldwin to Cooper.

   Transmits "Study" by Port and asks questions on access to airport, major east-west roads planned, improvements to Route 30 and Columbia Boulevard, improving 82nd Avenue and Lombard Street, defense connector routes to Air Force, and better connection between 82nd and Banfield westbound. Asks for meeting.

2. Nov. 12, 1964: Letter from Cooper to Baldwin.

   Looked over material and will meet when convenient.

3. Nov. 13, 1964: Letter from Baldwin to Cooper.

   Sets up meeting for November 19.

4. Nov. 16, 1964: Letter from Cooper (Porter) to Baldwin.

   November 19 meeting is okeh.

5. Nov. 25, 1964: Report of Nov. 19 meeting from Dow to Baldwin.

   Discussed Port Study pertaining to highway facilities, access to airport, and Rivergate Industrial District.

6. Dec. 1, 1964: Letter from Baldwin to Cooper.

   Concerned with access to Port facilities from Interstate 205.

7. Oct. 13, 1965: Memo to Files from Cooper.

   Talked to Lindsey by telephone and suggested he send us his preliminary ideas on access from Interstate 205.

8. Oct. 14, 1965: Letter from Neumeister to Cooper.

    Refers to talk with Lindsey. Asks for meeting with us and includes statement from December 11, 1964 public hearing.

9. Oct. 15, 1965: Letter from Cooper to Neumeister.

    Asks for Port's ideas on access.

10. Oct. 28, 1965: Letter from Neumeister to Cooper.

    Transmits supplements to Study sent October 26, 1964 and two alternate layouts for access from Interstate 205. Asks for meeting.

11. Nov. 18, 1965: Letter from Cooper (Klaboe) to Neumeister.

    Interchange is proposed by Multnomah County. Suggest talk with them and then meeting with us.

12. Mar. 18, 1966: Letter from Cooper (Barbee) to Dow.

    Transmits small map of Interstate 205 with interchange.

13. May 19, 1966: Letter from Dow to Morgan.

    Asks for more definite information on plans.

14. June 1, 1966: Letter from Cooper (Olson) to Dow.

    No data available. Will send when available.

15. Aug. 9, 1966: Letter from Dow to Johnson.

    States Metro Division supplied him with traffic data at airport. Supplies us with projected traffic of theirs which should be considered in design of interchange.

16. July 13, 1966: Letter from Johnson to Dow. (Not available).

    Transmits plan and profile of River Bridge. States that we feel we have met all the airport's criteria.

17. Aug. 12, 1966: Letter from Dow to Johnson.

Our plan will extend above the 100:1 surface and the horizontal surface 150 feet above the airport elevation. Suggests moving line east.

18. Aug. 23, 1966: Letter to Dow from Merchant.

Refers to August 3 meeting. Transmits preliminary drawings of structure and grade line, structural clearance upstream, and ship height data. Requests examination of material.

19. Sept. 20, 1966. Letter from Baldwin to Cooper.

Includes minutes of September 6, 1966 meeting. Results of meeting are listed. Requests line be moved easterly.

20. Sept. 26, 1966: Letter from Cooper (Klaboe) to Baldwin.

We will analyze request to move bridge east.

21. Oct. 19, 1966: Letter from Cooper (Klaboe) to Baldwin.

Does not appear we can justify moving east with BPR. Have applied to FAA and must await their decision.

22. Oct. 21, 1966: Letter from Baldwin to Klaboe.

Even though we meet minimum FAA requirements for present facilities, the Port expects to expand and feels more leeway should be included in our design. Port will object strongly to FAA.

23. Oct. 27, 1966: Letter from Cooper (Klaboe) to Baldwin.

Acknowledges request to move east but will await FAA investigation.

24. Oct. 31, 1966: Letter to Bully from Baldwin--cc OSHD.

States Port is working with us to get bridge location settled.

25. Nov. 11, 1966: Letter from Neumeister to McKnight.--cc Cooper.

Sets forth Port's contention to have bridge location moved easterly.

26. Dec. 9, 1966: Letter from Neumeister to McKnight--cc Cooper.

If FAA approves of our location, Port requests a public hearing on the matter.

27. Dec. 12, 1966: Memo to Files from Klaboe.

BPR, OSHD, and FAA felt we met minimum standards in present location and this fact governs. Port wanted guarantee from FAA plan would not harm them or they will continue fight to move line easterly.

28. Dec. 21, 1966: Memo to Files from Cooper.

Decided at meeting to settle bridge location between Port and OSHD without public hearing. OSHD will study additional clearances and later arrange meeting.

29. Jan. 20, 1967: Letter from Baldwin to Cooper.

Reiterates December meeting and states Port will meet with us to finalize location of bridge,

30. Apr. 3, 1967: Letter from Baldwin to Talbott--cc Jackson.

Port objects to location and clearances of our proposed bridge. Corps of Engineers is requested to withhold approval or hold a public hearing.

31. May 3, 1967 Memo of meeting (here) with representatives of Port re. their expansion plans.

8705

8

THE PORT OF PORTLAND

RECEIVED MAY 19 1967

May 8, 1967

TO: FILE

FROM: E. R. ARNOLD

SUBJECT: MINUTES OF I-205 INTERSTATE BRIDGE MEETING WITH OREGON STATE HIGHWAY DEPARTMENT - MAY 3, 1967

Persons in attendance were: Messrs. T. A. Edwards, Ivan Merchant and D. J. Barbee of the Oregon State Highway Department and Messrs. R. A. Neumeister, R. F. Dow and E. R. Arnold of The Port of Portland staff.

The purpose of the meeting was to discuss the proposed bridge and its effects on the requirements of the Port with respect to maritime and aviation facilities.

The State had requested the Corps of Engineers' hearing for the sole purpose of establishing maritime requirements prior to locating the bridge with respect to the airport runway requirements. The hearing has now been rescheduled for May 25, 1967.

The Port's layout plan of Portland International Airport was discussed, including runway extensions; the master development study; possible expansion of the airport by moving runway 10R-28L south; and possible development of a new airport south of Portland for passenger facilities, but reserving Portland International Airport for cargo and general aviation use.

Mr. Neumeister reviewed the Port's position regarding the bridge as described in the Corps of Engineers' Public Notice 67-22, dated February 28, 1967, and stated the basic items of request which the Port anticipates making in its statements at the public hearing. The Port is requesting 48 feet of vertical clearance over the side channel between Government Island and Marine Drive, plus 100:1 clearance of a 17-foot high vehicle on the bridge from the future end of the runway when a 2,500-foot extension is complete. These requests result accumulatively in the Port's request for an easterly relocation of the proposed bridge of approximately 3,600 feet.

Mr. Neumeister also showed the Portland International Airport aerial photo on which future expansion, along with the requested relocation site of the bridge, is shown.

NOTED TOM EDWARDS

NOTED R L FOSTER

Copy - Merchant 5-16-67

NOTED TOM EDWARDS

The possibility of using two bridge structures in conjunction with a dike-type fill on Government Island was mentioned, as was the possibility of moving the Washington shore approach upstream and/or feasibility of tunneling all or part of the distance across the river.

It appears that Washington State Highway Department is reluctant to move the north shore end of the bridge because a Washington proposal for a freeway location near Pendleton was rejected by Oregon as unsatisfactory.

It is estimated by Oregon State Highway Department that the Port's requested relocation will increase bridge costs by some $9 million, based on 3,100 lineal feet of additional length at a unit cost of approximately $3,000 per foot.

Upon inquiry as to whether a 100:1 clearance over the structure itself would be satisfactory to the Port, the Highway Department was advised this would be a Port Commission decision, but seemed to be an area in which the Port could possibly compromise the runway approaches.

The Oregon State Highway Department will send a draft of their proposed statement for the hearing to the Port for information purposes, and the Port will advise the State of the Port's position concerning marine clearances only.

It was mutually felt that if the problems cannot, in a reasonably short time, be resolved locally, then the two agencies should jointly take the matter to the Department of Transportation in Washington for a decision.

ERA:pk
cc: T. A. Edwards, OSHD

RECEIVED
MAY 12 1967
OFFICE OF
STATE HIGHWAY ENGINEER

8905

RECEIVED
MAY 1 - 1967
FOR FILING

Salem, Oregon
May 3, 1967

Forrest Cooper
State Highway Engineer

OFFICE

On this date, Ivan Merchant, D. J. Barbee, and I met with R. A. Neumeister, R. F. Dow, and L. E. Arnold, Jr. of the Port of Portland concerning the problem of I-205 and the navigation clearances, both air and water, at the easterly end of the Portland Airport. They left a mosaic of their proposed plan which they will pick up on Thursday afternoon and left a print of their proposed development. We find the following basic facts in exploring this problem:

(1) The Port of Portland is at the moment undecided whether to expend another $25 to $40 million on the existing port or whether to develop a new facility at an entirely new location;

(2) Lacking a firm decision, they feel it in their best interests to protect possibilities at the existing site for at least another few months until a firm decision is taken;

(3) They will appear at the hearing and recommend a maximum 48-foot clearance over the south channel. They have no objectionto our proposed clearance over the main channel.

(4) After the clearances have been established, either by the Corps of Engineers or by the Coast Guard, they will join with the Highway Department in interceding to Secretary Boyd (or whoever is necessary) in the interest of securing the maximum 48-foot clearance;

(5) They will provide us with a draft of the statement they propose to make at the hearing;

(6) They were advised that we would appear at the hearing and explain that there was a conflict between highway

transport and air navigation at the east end of the airport; that a necessary step to resolving this problem was the definite establishment of clearances for water navigation. They were told that after these were established, we believe the Port Commission and the Highway Commission would sit down together and work out the problem of location as it affects flight patterns.

(7) They did indicate that there was possibility of compromise concerning the area between the 50:1 approach path and the 100:1 approach path.

Tom Edwards
Assistant State Highway Engineer

TE:ms
cc R. L. Porter
F. B. Klaboe
Victor D. Wolfe
I. D. Merchant
D. J. Barbee

8905

8

5-3-67

# INTERSTATE 205 COMPARATIVE ESTIMATE

| | | Length | Cost |
|---|---|---|---|
| Proposed Route--Grading and Paving | .... | 5,000' | $ 1,580,000 |
| Present Route--Grading and Paving | .... | 5,400' | 1,705,000 |
| | | -400' | -$ 125,000 |
| Proposed Route--Structure | .... | 13,300' | $50,021,000 |
| Present Route--Structure | .... | 9,600' | 36,400,000 |
| | | +3,700' | +$13,621,000 |
| Proposed Route--Total | .... | 18,300' | $51,601,000 |
| Present Route--Total | .... | 15,000' | 38,105,000 |
| | | +3,300' | +$13,496,000 |

| | | Approach Surface | | Small Craft Channel | |
|---|---|---|---|---|---|
| Criteria | Runway | Slope | Vert.Cl. | Hor.Cl. | Vert.Cl. M.L.W. |
| Proposed Route | 2,500' Ext. | 100:1 | 17 | 150 | 48 |
| Present Route | Existing | 50:1 | 17 | 150 | 40 |

May 3, 1967

Form E-43—30M

OREGON STATE HIGHWAY
DEPARTMENT

TABULATION SHEET

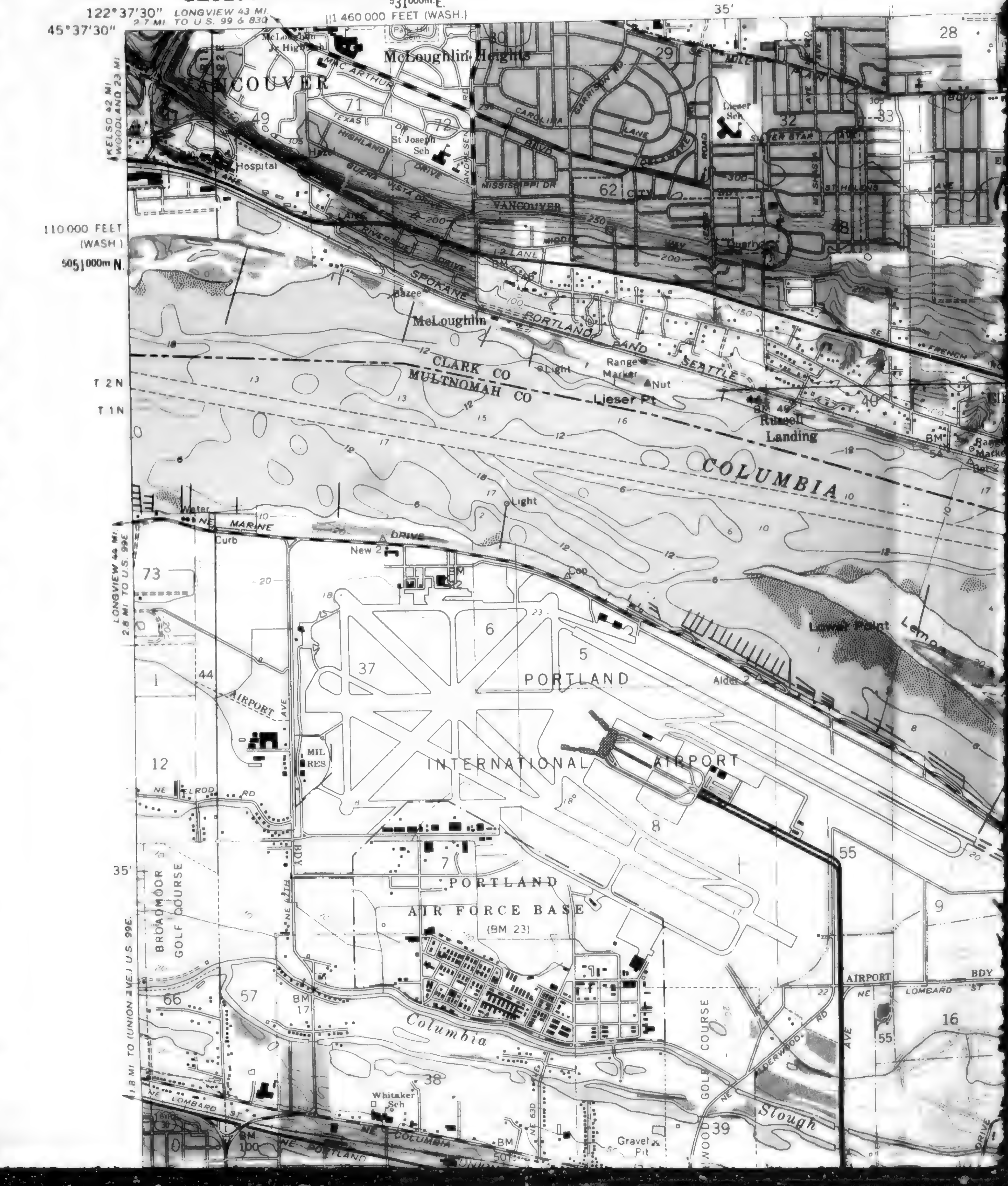
SHEET .......... OF .......... SHEETS

## I-205 Comparative Estimate
## (6 Lane)

| | Length | Cost |
|---|---|---|
| Proposed Route Grading & Paving | 5,000 | $1,580,000 |
| Present Route Grading & Paving | 5400' | $1,705,000 |
| | −400' | −$125,000 |
| | | |
| Proposed Route Structure | 13,300 | $50,021,000 |
| Present Route Structure | 9,600' | $36,400,000 |
| | +3,700' | +$13,621,000 |
| | | |
| Proposed Route Total | 18,300' | $51,601,000 |
| Present Route Total | 15,000' | $38,105,000 |
| | +3,300' | +$13,496,000 |

| Criteria | | Appr. Surface Slope | Appr. Surface Vert. Cl. | Small Craft Chan. Hor. Cl. | Small Craft Chan. Vert. Cl. MLW. |
|---|---|---|---|---|---|
| Proposed Route | 2500' Runway Ext. | 100:1 | 17 | 150 | 48 |
| Present Route | | 50:1 | 17 | 150 | 40 |

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY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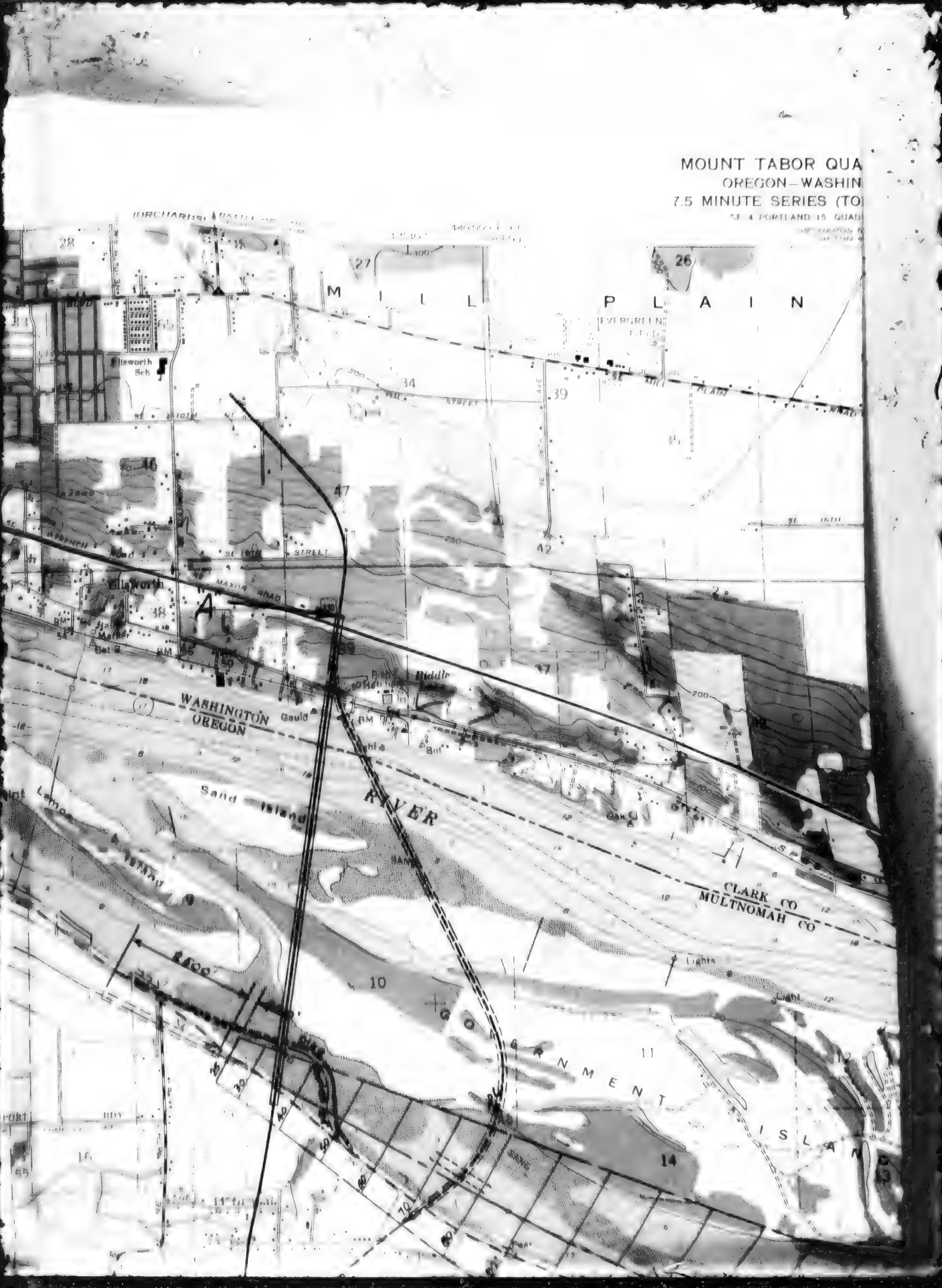
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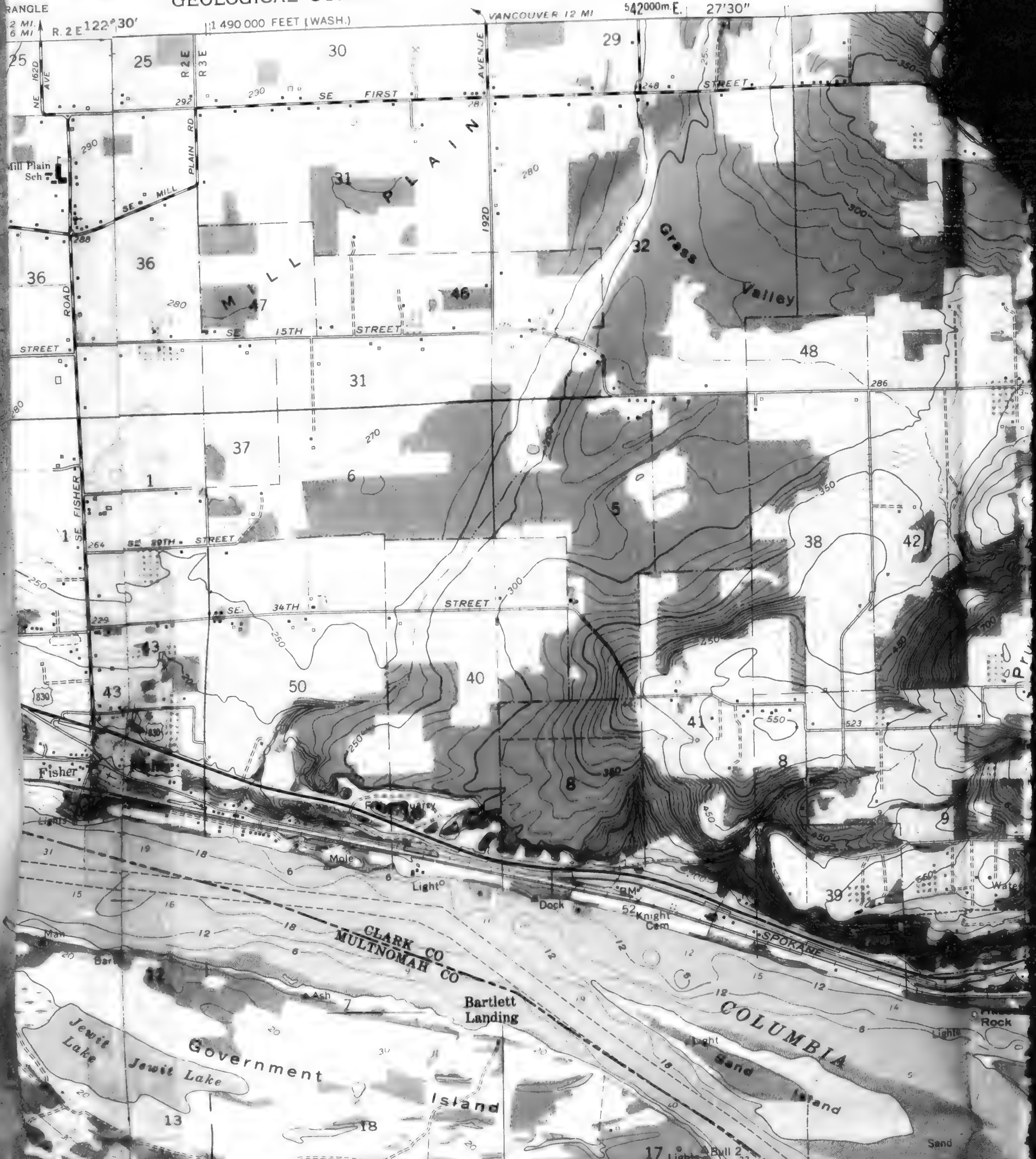
UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY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MULTNOMAH CO
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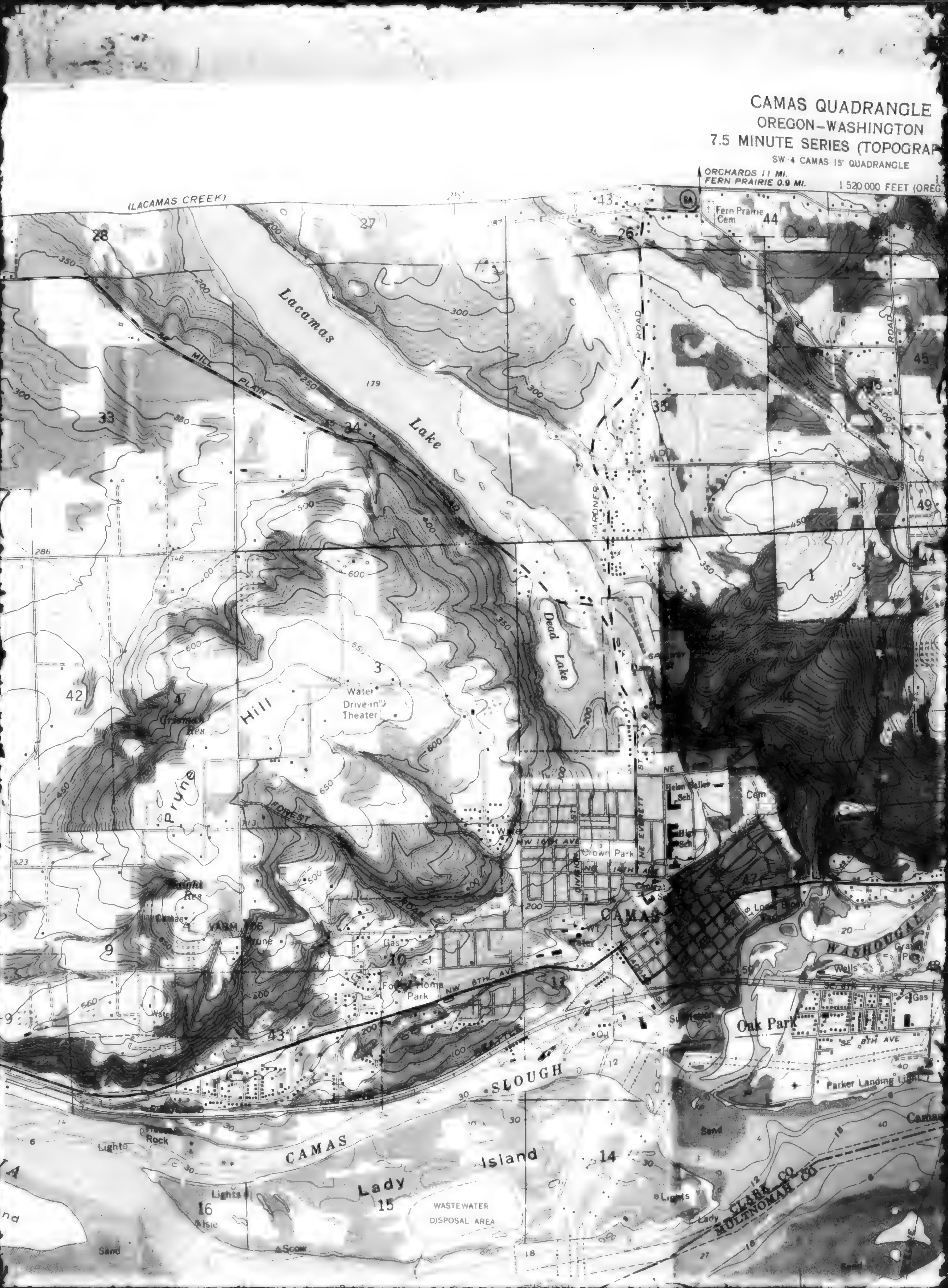

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CAMAS QUADRANGLE
OREGON–WASHINGTON
7.5 MINUTE SERIES (TOPOGRAPHIC)
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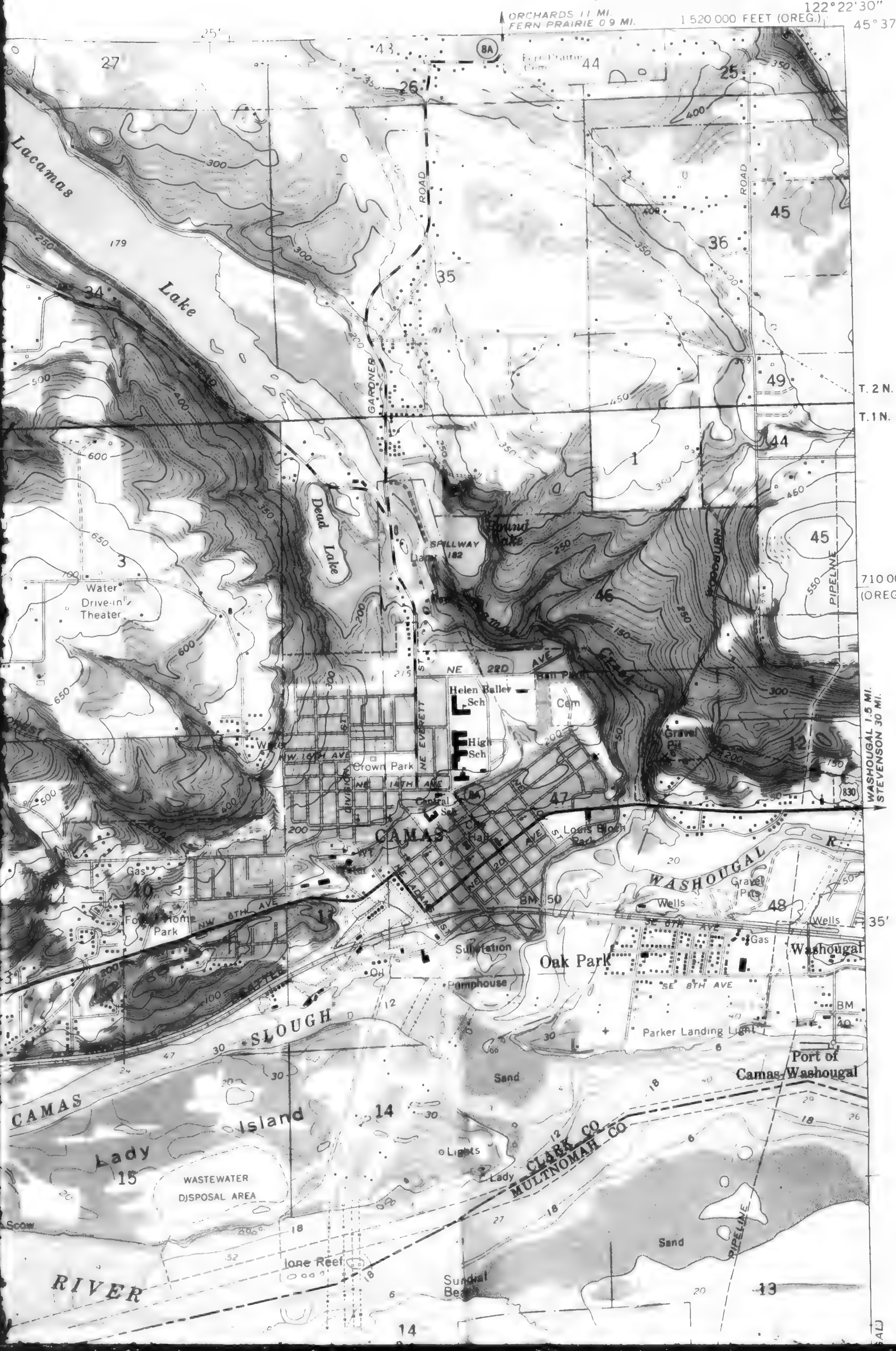
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Gas
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Forest Home Park
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Substation
Oak Park
Pumphouse
SE 8TH AVE
BM 40
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WASTEWATER DISPOSAL AREA
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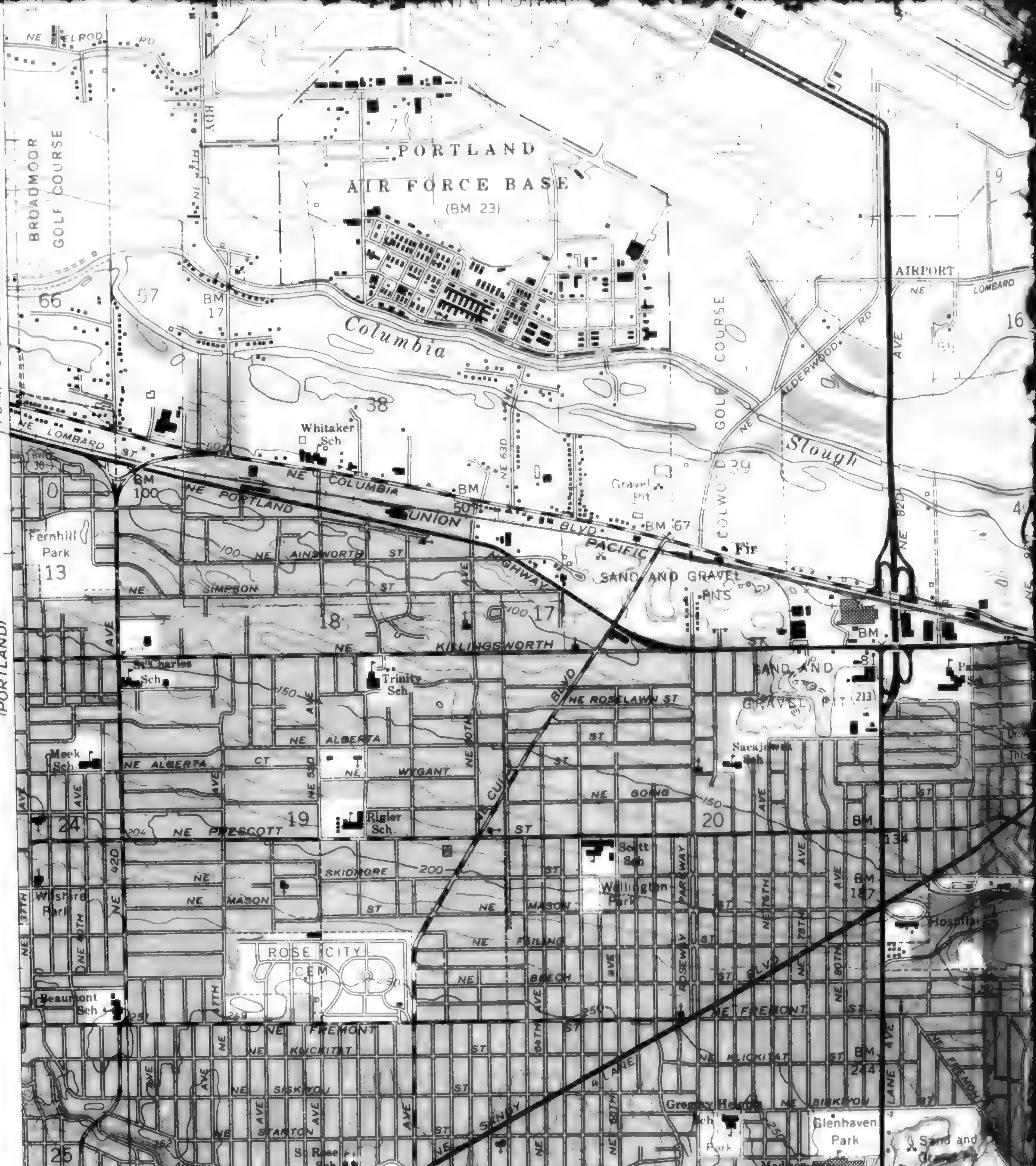
PORTLAND AIR FORCE BASE
(BM 23)
Columbia
Slough
BROADMOOR GOLF COURSE
GOLF COURSE
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NE COLUMBIA BLVD
UNION PACIFIC
SAND AND GRAVEL PITS
Gravel Pit
Fernhill Park
NE AINSWORTH ST
NE SIMPSON ST
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St Charles Sch
Trinity Sch
NE ROSELAWN ST
Meek Sch
NE ALBERTA
NE WYGANT
NE GOING
Sacajawea Sch
NE PRESCOTT
Rigler Sch
Scott Sch
NE SKIDMORE
NE MASON
Wellington Park
Wilshire Park
ROSE CITY CEM
NE FAILING
NE BEECH
Beaumont Sch
NE FREMONT
NE KLICKITAT
NE SISKIYOU
NE STANTON
Gregory Heights Sch
Glenhaven Park
Madison High Sch
St Rose Sch
NE KNOTT ST
Holy Child Academy
Rose City Park Sch
ROSE CITY GOLF COURSE
Rice Sch
NE THOMPSON
Hollywood
NE TILLAMOOK
Glenhaven Sch
NE BROADWAY
PORTLAND
UNION EXPRESSWAY
NE HALSEY
Sullivan
Normandale Park
Grant
County Juvenile Home
NE CLACKAMAS ST
NE MULTNOMAH
NE HASSALO ST
Laurelhurst Sch
Fraser Sch
Gulch
BANFIELD
Providence Hospital
All Saints Sch
NE GLISAN
NE OREGON
Montavilla Park
Multnomah School of the Bible
NE FLANDERS ST
NE EVERETT
NE DAVIS
Vestal Sch
Laurelhurst
Portland Union Academy
E BURNSIDE
Montavilla
Mt Tabor Sch
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(PORTLAND)
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BM 187
BM 244
BM 199
BM 248
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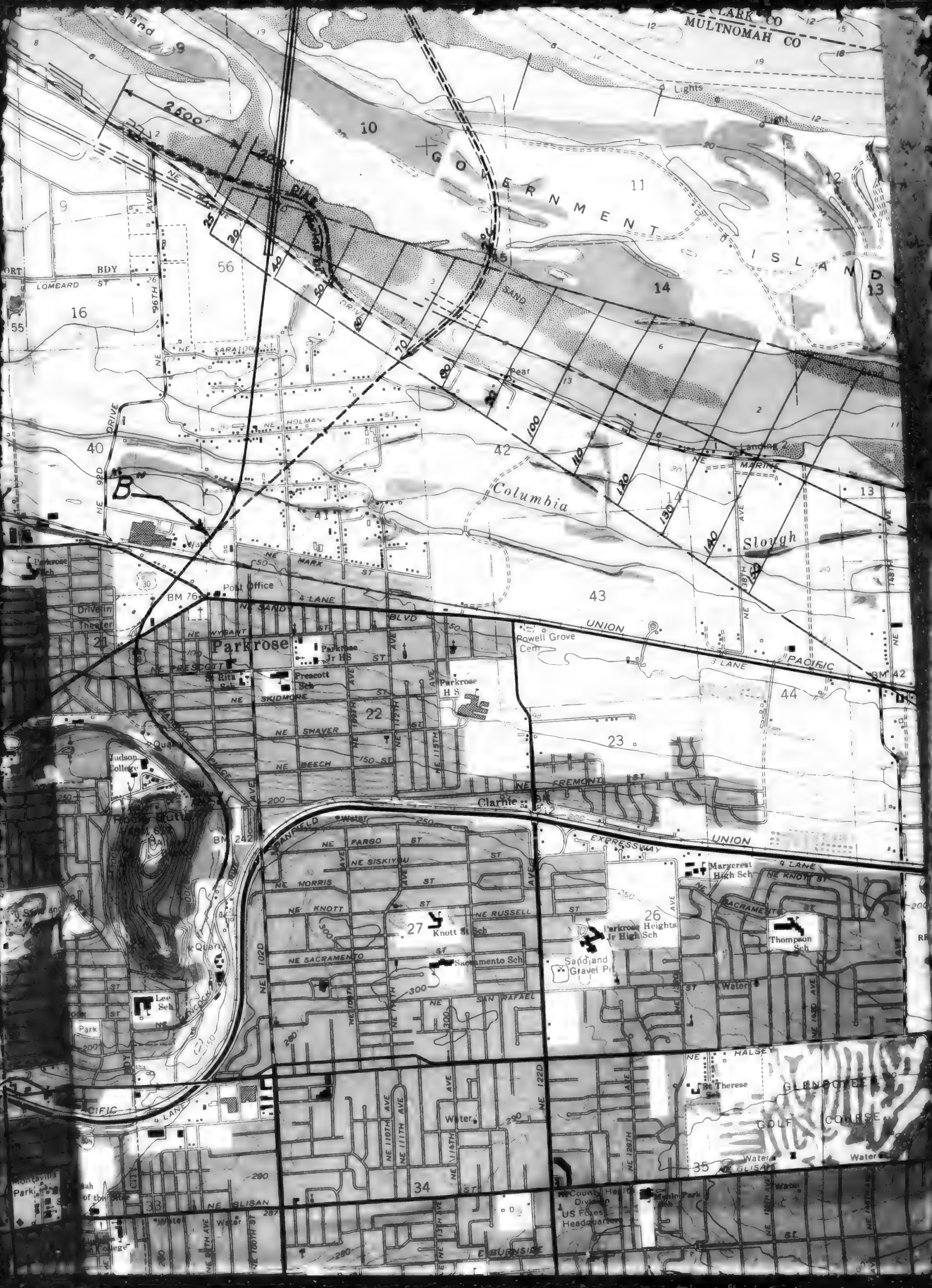
NE SANDY BLVD
HIGHWAY
Fir
Hospital
Sand and Gravel


CLARK CO
MULTNOMAH CO
2500'
2000'
GOVERNMENT ISLAND
Lights
SAND
Columbia Slough
"B"
NE SANDY BLVD
UNION PACIFIC
Parkrose
Parkrose Jr HS
Prescott Sch
St Rita Sch
Parkrose HS
Powell Grove Cem
Post Office
Drive-In Theater
Judson College
Rocky Butte
Quarry
Lee Sch
Clarnie
EXPRESSWAY
Marycrest High Sch
Knott St Sch
Sacramento Sch
Parkrose Heights Jr High Sch
Thompson Sch
Sand and Gravel Pit
St Therese
GLENDOVEER GOLF COURSE
County Health Division
US Forest Headquarters
Menlo Park Sch
NE HALSEY
NE GLISAN
E BURNSIDE
NE LOMBARD ST
NE MARINE DR
NE HOLMAN ST
NE MARX ST
NE FREMONT ST
NE SHAVER
NE SKIDMORE
NE PRESCOTT
NE KNOTT
NE RUSSELL
NE SACRAMENTO
NE SAN RAFAEL
NE FARGO ST
NE SISKIYOU
NE NORRIS
NE 102D
NE 122D
NE 96TH AVE
NE 92D DRIVE
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BM 242
BM 42
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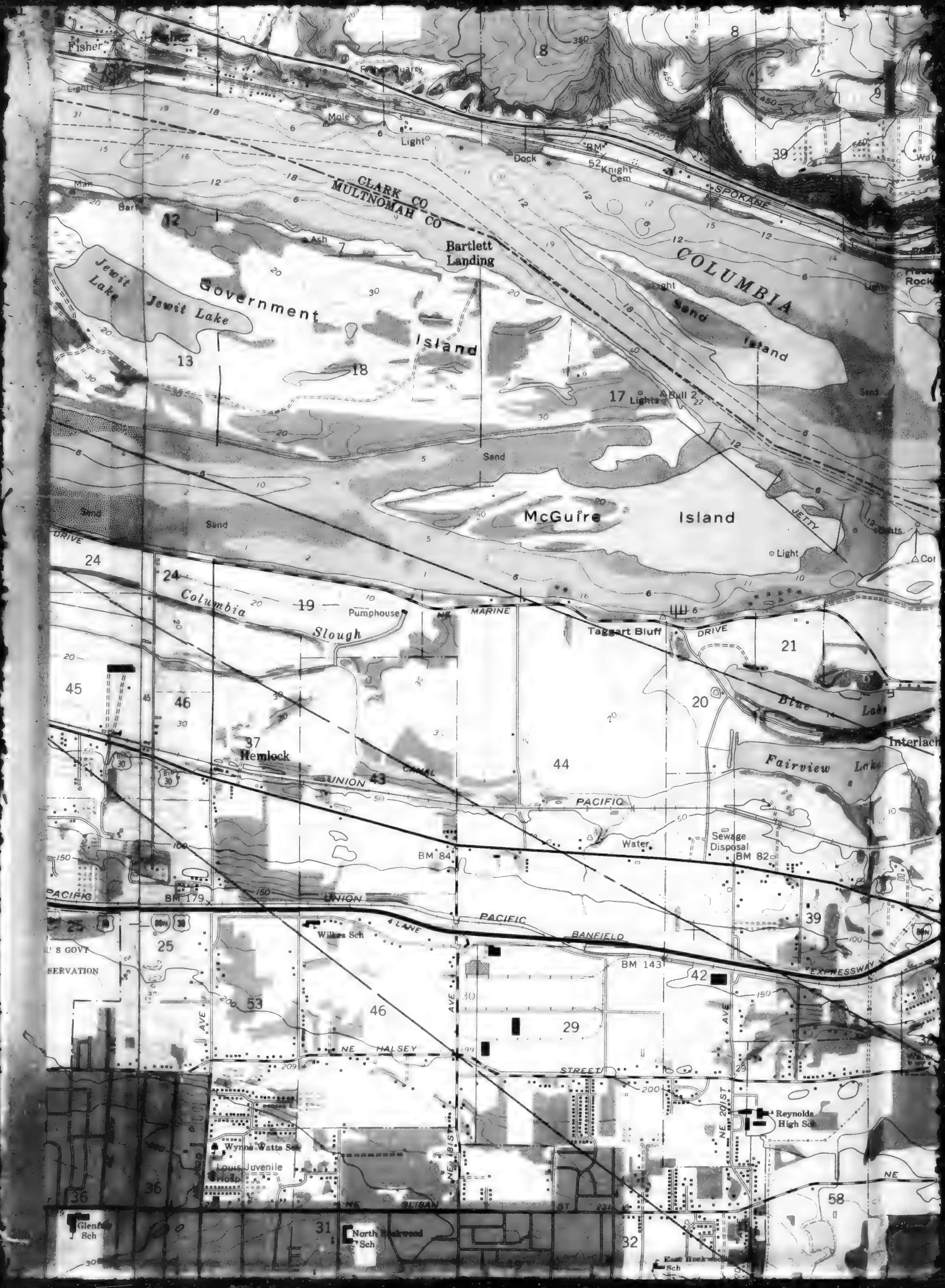
Fisher
Lights
Mole
Light
Dock
BM 52
Knight Cem
SPOKANE
CLARK CO
MULTNOMAH CO
Bartlett Landing
COLUMBIA
Jewit Lake
Jewit Lake
Government Island
Sand Island
Ash
McGuire Island
Lights
Bull 2
Light
JETTY
Sand
Columbia Slough
Pumphouse
NE MARINE DRIVE
Taggart Bluff
Blue Lake
Interlachen
Fairview Lake
Hemlock
UNION CANAL
PACIFIC
Sewage Disposal
Water
BM 84
BM 82
BM 179
UNION PACIFIC
BANFIELD EXPRESSWAY
4 LANE
BM 143
Wilkes Sch
U S GOVT RESERVATION
NE HALSEY STREET
NE 181ST AVE
NE 201ST AVE
Reynolds High Sch
Wynne Watts Sch
Louis Juvenile Hosp
NE GLISAN ST
Glenfair Sch
North Rockwood Sch
East Rockwood Sch
Rocky Point
Cottonwood
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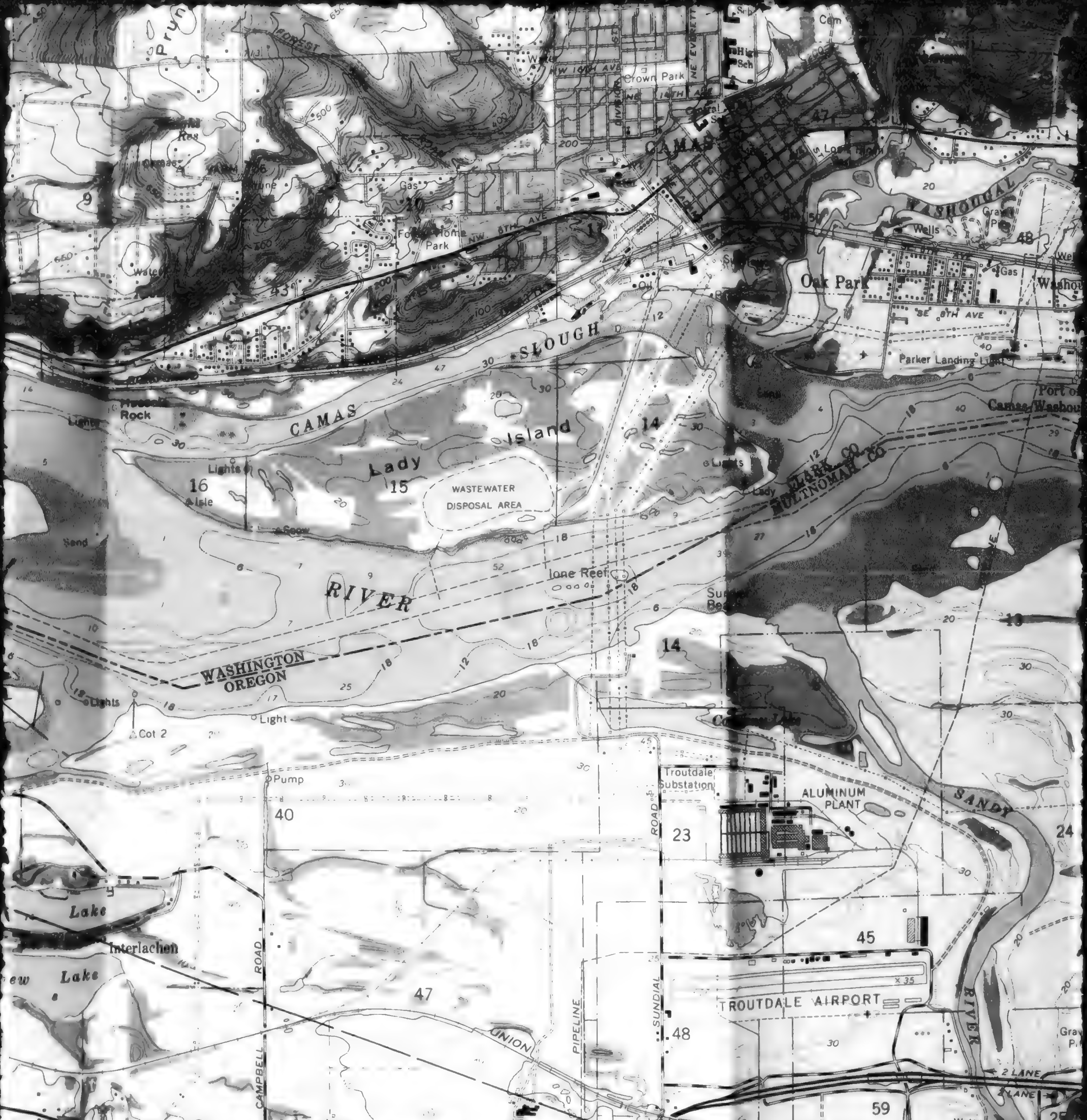
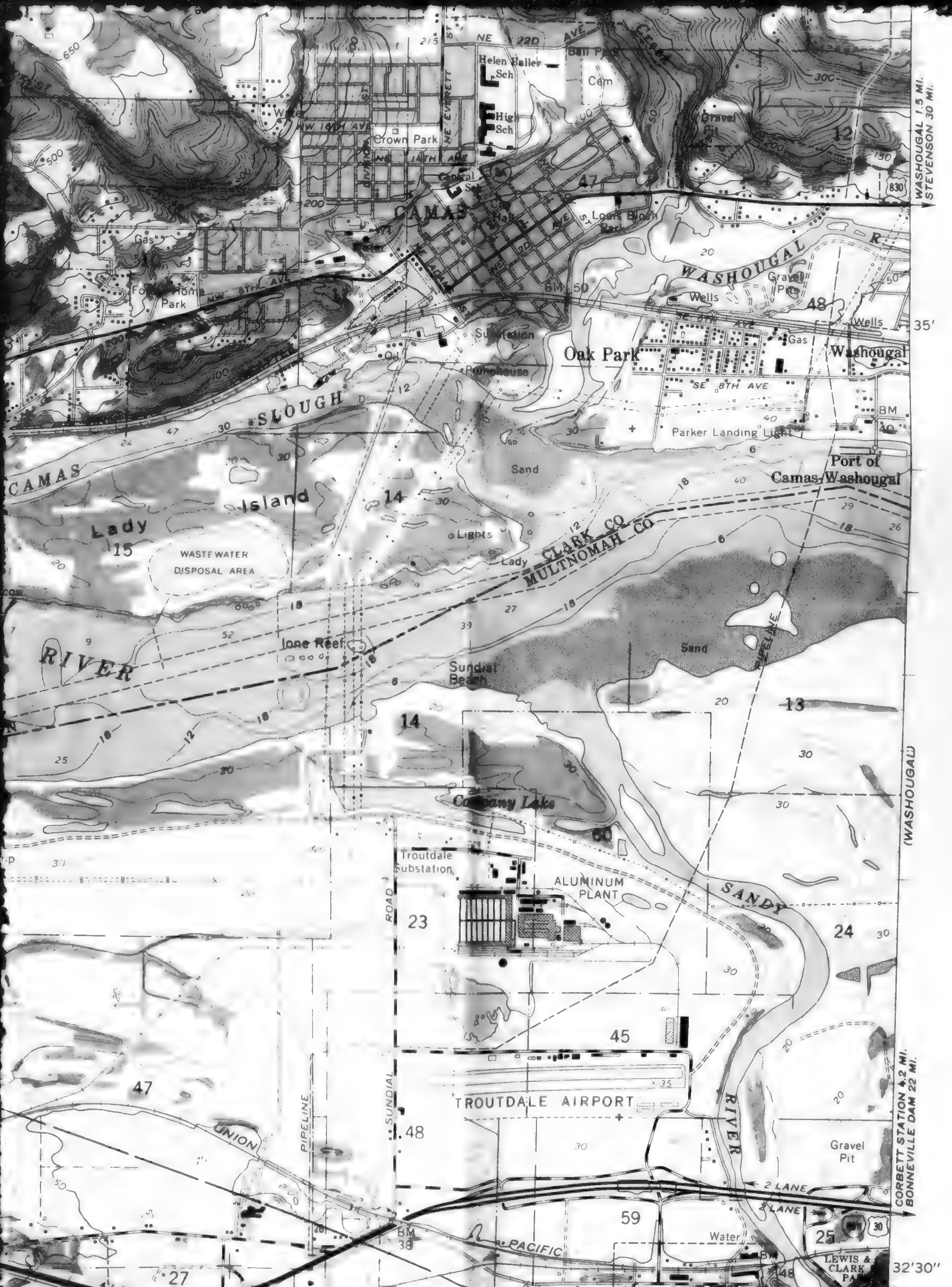
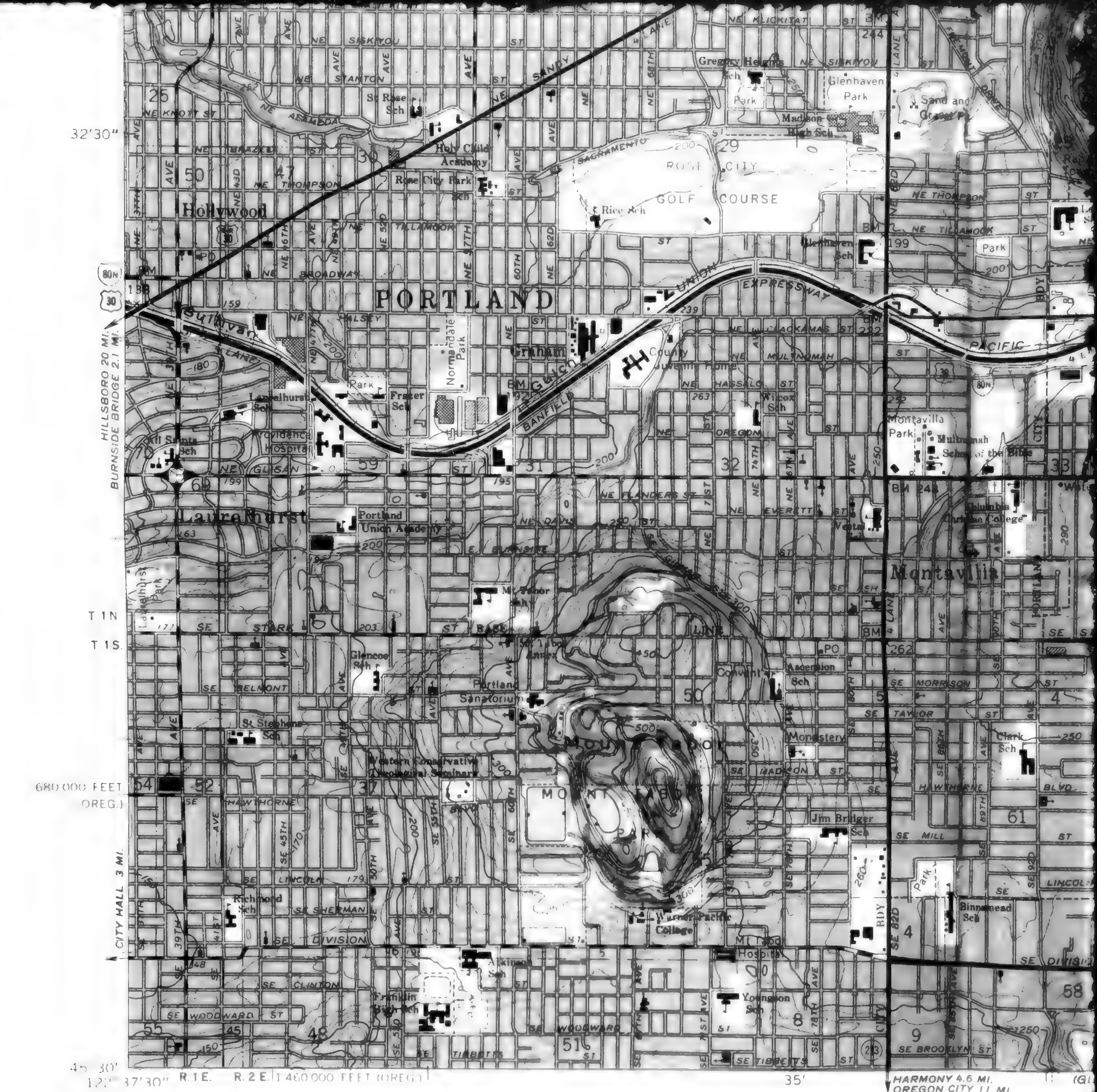


CAMAS
Crown Park
Forest Home Park
Oak Park
WASHOUGAL
Parker Landing Light
Port of Camas-Washougal
CAMAS SLOUGH
Lady Island
WASTEWATER DISPOSAL AREA
Ione Reef
RIVER
WASHINGTON
OREGON
CLARK CO
MULTNOMAH CO
Reed Island
Lady Island
Troutdale Substation
ALUMINUM PLANT
SANDY RIVER
TROUTDALE AIRPORT
Interlachen
Lake
UNION PACIFIC
CAMPBELL ROAD
SUNDIAL ROAD
PIPELINE
4 LANE
2 LANE
EXPRESSWAY
Fairview
NE HALSEY
Wood Village
ARATA RD
County Poor Farm and Home
Troutdale
Douglas Cem
STREET
PARK
AVENUE
Fairview
Cot 2
Pump
Light
Lights



NE 220 AVE
Helen Baller Sch
Cem
High Sch
Crown Park
NW 14TH AVE
Central Sch
CAMAS
Lower Camas Res
Gas
Forest Home Park
NW 6TH AVE
Substation
Pumphouse
Oak Park
Washougal
Gravel Pit
Wells
WASHOUGAL R
SE 8TH AVE
Parker Landing Light
Port of Camas-Washougal
WASHOUGAL 1.5 MI.
STEVENSON 30 MI.
830
12
47
48
35′
CAMAS SLOUGH
Lady Island
15
14
WASTEWATER DISPOSAL AREA
Lights
Lady
CLARK CO
MULTNOMAH CO
Sand
RIVER
Ione Reef
Sundial Beach
13
PIPELINE
Company Lake
60
(WASHOUGAL)
Troutdale Substation
ALUMINUM PLANT
ROAD
23
SANDY
24
45
TROUTDALE AIRPORT
SUNDIAL
PIPELINE
47
48
UNION
PACIFIC
RIVER
2 LANE
Gravel Pit
59
CORBETT STATION 4.2 MI.
BONNEVILLE DAM 22 MI.
Water
BM 38
25
30
LEWIS & CLARK PARK
32′30″
27
4 LANE
BM 78
Troutdale
BM 73
STREET
Fairview
26
County Farm and Home
NE HALSEY
Wood Village
ARATA RD
41
PIPELINE
Water
276
ROAD
256
Douglas Cem
61
36
PARK
36


PORTLAND
Hollywood
Laurelhurst
Montavilla
Mount Tabor
MOUNT TABOR PARK
ROSE CITY GOLF COURSE
UNION EXPRESSWAY
BANFIELD
Sullivan
PACIFIC
NE KLICKITAT ST
NE SISKIYOU ST
NE STANTON ST
NE KNOTT ST
NE ALAMEDA
NE BRAZEE
NE THOMPSON
NE TILLAMOOK
NE BROADWAY
NE SACRAMENTO
NE HALSEY
NE CLACKAMAS ST
NE MULTNOMAH
NE HASSALO ST
NE OREGON
NE GLISAN
NE FLANDERS ST
NE EVERETT ST
NE DAVIS
E BURNSIDE
SE STARK ST
BASE LINE
SE BELMONT
SE MORRISON
SE TAYLOR
SE MADISON ST
SE HAWTHORNE
HAWTHORNE BLVD
SE MILL ST
SE LINCOLN
SE SHERMAN
SE DIVISION
SE CLINTON
SE WOODWARD ST
SE TIBBETTS ST
SE BROOKLYN ST
Gregory Heights Sch
Glenhaven Park
Madison High Sch
Sand and Gravel
St Rose Sch
Holy Child Academy
Rose City Park Sch
Rice Sch
Glenhaven Sch
Park
Normandale Park
Frazer Sch
Graham
County Juvenile Home
Wilcox Sch
Laurelhurst Park
All Saints Sch
Providence Hospital
Montavilla Park
Multnomah School of the Bible
Columbia Christian College
Portland Union Academy
Vestal Sch
Mt Tabor Sch
Glencoe Sch
Portland Sanatorium
Convent
Ascension Sch
Monastery
St Stephens Sch
Western Conservative Theological Seminary
Clark Sch
Jim Bridger Sch
Binnsmead Sch
Richmond Sch
Warner Pacific College
Mt Tabor Hospital
Atkinson Sch
Franklin High Sch
Youngson Sch
BM
PO
32'30"
HILLSBORO 20 MI.
BURNSIDE BRIDGE 2.1 MI.
T 1 N
T 1 S.
680 000 FEET (OREG.)
CITY HALL 3 MI.
45°30'
122°37'30"
R. 1 E.
R. 2 E.
1 460 000 FEET (OREG.)
35'
HARMONY 4.6 MI.
OREGON CITY 11 MI
(GL
(LAKE OSWEGO)

Mapped edited and published by the Geological Survey

Control by USGS USC&GS and State of Oregon

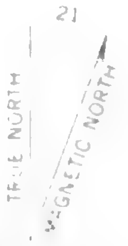
Topography from aerial photographs by photogrammetric methods and by planetable surveys Culture and drainage in part by USC&GS.
Aerial photographs taken 1951 and 1952 Field checked 1954
Revised from aerial photographs taken 1960 Field checked 1961

Polyconic projection 1927 North American datum
10,000-foot grids based on Oregon coordinate system north zone and Washington coordinate system, south zone
1000 meter Universal Transverse Mercator grid ticks zone 10, shown in blue

Selected hydrographic data compiled from USC&GS Chart 6156 (1959)
This information is not intended for navigational purposes

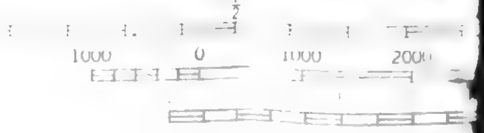
Red tint indicates areas in which only landmark buildings are shown

Dashed land lines indicate approximate location.
Fine red dashed lines indicate selected fence lines.


21
TRUE NORTH
MAGNETIC NORTH

APPROXIMATE MEAN DECLINATION, 1961

SCAL


1000
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CONTOUR

DATUM IS

DEPTH CURVES AND SOUNDIN

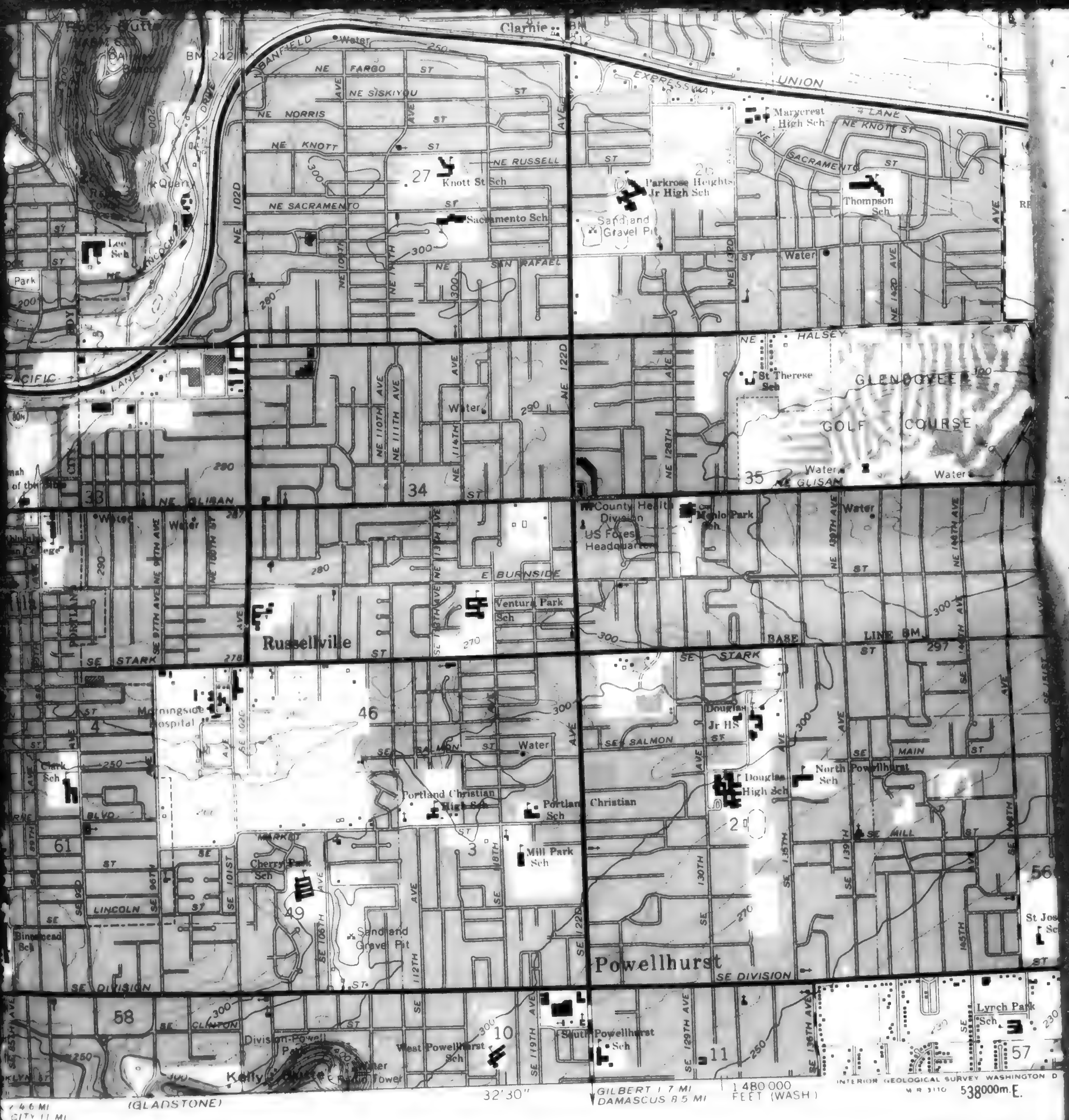
SHORELINE SHOWN REPRESENTS

THE MEAN RANGE OF

THIS MAP COMPLIES WITH N

FOR SALE BY U.S. GEOLOGICAL SURVEY,

A FOLDER DESCRIBING TOPOGRAPHIC


Rocky Butte
Clarnie
BM 242
NE FARGO ST
NE SISKIYOU ST
NE NORRIS ST
NE KNOTT ST
NE RUSSELL
NE SACRAMENTO
NE SAN RAFAEL
UNION
EXPRESSWAY
Marycrest High Sch
Knott St Sch
Sacramento Sch
Parkrose Heights Jr High Sch
Sand and Gravel Pit
Thompson Sch
Lee Sch
Park
Quarry
Water
NE HALSEY
St Therese Sch
GLENDOVEER GOLF COURSE
PACIFIC
NE GLISAN
County Health Division
US Forest Headquarters
Menlo Park Sch
E BURNSIDE
Ventura Park Sch
Russellville
BASE LINE BM
SE STARK ST
Morningside Hospital
SE SALMON ST
SE MAIN
Douglas Jr HS
Douglas High Sch
North Powellhurst Sch
Clark Sch
Portland Christian High Sch
Portland Christian Sch
Mill Park Sch
Cherry Park Sch
SE MILL
SE LINCOLN ST
Sand and Gravel Pit
Binnsmead Sch
Powellhurst
SE DIVISION
St Joseph Sch
SE CLINTON
Division-Powell Park
Kelly Butte
Water Tower
West Powellhurst Sch
South Powellhurst Sch
Lynch Park Sch
27
26
33
34
35
46
4
61
3
2
49
58
10
11
57
56
(GLADSTONE)
32'30"
GILBERT 1.7 MI
DAMASCUS 8.5 MI
1 480 000 FEET (WASH.)
INTERIOR GEOLOGICAL SURVEY WASHINGTON D
M R 3110
538000m.E.

SCALE 1:24 000

CONTOUR INTERVAL 10 FEET

DATUM IS MEAN SEA LEVEL

MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS

EOLOGICAL SURVEY, DENVER 25, COLORADO OR WASHINGTON 25, D. C.

CRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

ROAD CLASSIFICATION

Heavy duty —— Light-duty

Medium duty – – – Unimprove

Interstate Route U. S. Route

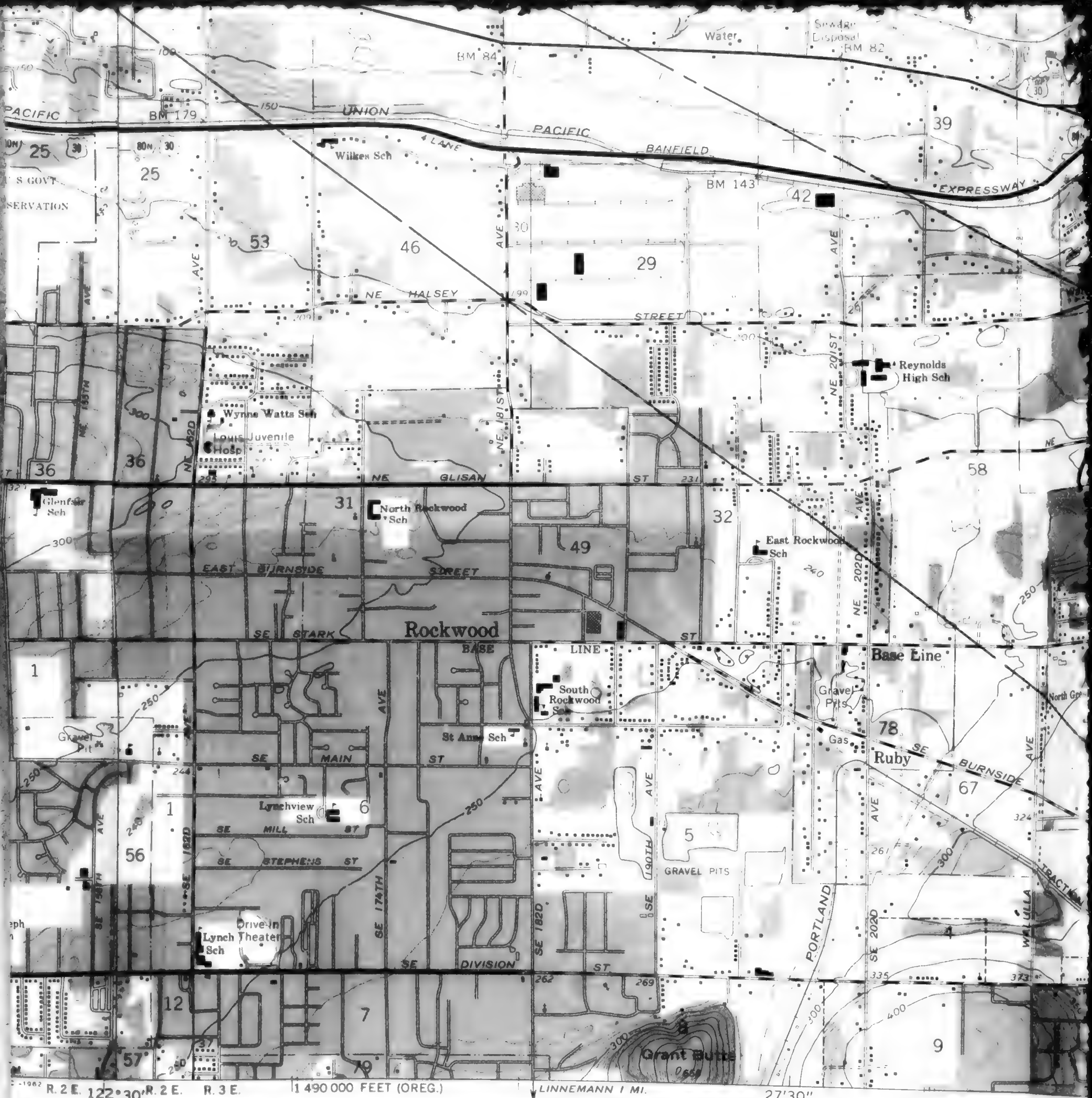
QUADRANGLE LOCATION

MOUNT TABOR, ORE

SE/4 PORTLAND 15' QUA

N4530—W12230

1961


Water
Sewage Disposal
BM 84
BM 82
PACIFIC
BM 179
UNION
PACIFIC
4 LANE
BANFIELD
EXPRESSWAY
Wilkes Sch
39
25
25
S GOVT
SERVATION
BM 143
42
53
46
29
NE HALSEY
STREET
Reynolds High Sch
Wynne Watts Sch
Louis Juvenile Hosp
NE 181ST AVE
NE 201ST AVE
58
36
36
NE GLISAN ST
Glenfair Sch
31
North Rockwood Sch
32
East Rockwood Sch
49
EAST BURNSIDE STREET
SE STARK ST
Rockwood
BASE LINE
Base Line
South Rockwood Sch
Gravel Pits
78
Gas
Ruby
SE BURNSIDE
67
1
Gravel Pit
SE MAIN ST
St Anne Sch
Lynchview Sch
6
1
SE MILL ST
SE STEPHENS ST
5
GRAVEL PITS
56
PORTLAND
TRACTION
Lynch Sch
Drive-in Theater
SE DIVISION ST
SE 174TH
SE 182D
SE 190TH AVE
SE 202D AVE
12
7
57
Grant Butte
9
R. 2 E.
122°30'
R. 2 E.
R. 3 E.
1 490 000 FEET (OREG.)
LINNEMANN 1 MI.
27'30"

Mapped, edited, and published by the Geological Survey

Control by USGS, USC&GS, and State of Oregon

Topography from aerial photographs by photogrammetric methods and by planetable surveys 1954. Culture and drainage in part by USC&GS. Aerial photographs taken 1951

Revised from aerial photographs taken 1960. Field check 1961

Selected hydrographic data compiled from USC&GS Chart 6156 (1959)
This information is not intended for navigational purposes

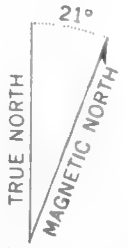
Polyconic projection. 1927 North American datum
10,000-foot grids based on Oregon coordinate system, north zone and Washington coordinate system, south zone
1000-meter Universal Transverse Mercator grid ticks, zone 10, shown in blue

Red tint indicates areas in which only landmark buildings are shown
Dashed land lines indicate approximate locations
Fine red dashed lines indicate selected fence lines

l dirt

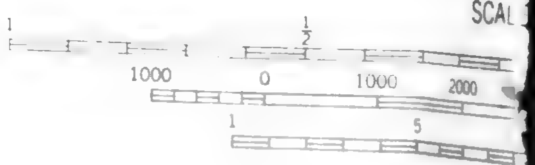
○ State Route

G.–WASH.
RANGLE
7.5


21°
TRUE NORTH
MAGNETIC NORTH

APPROXIMATE MEAN DECLINATION, 1961

(DA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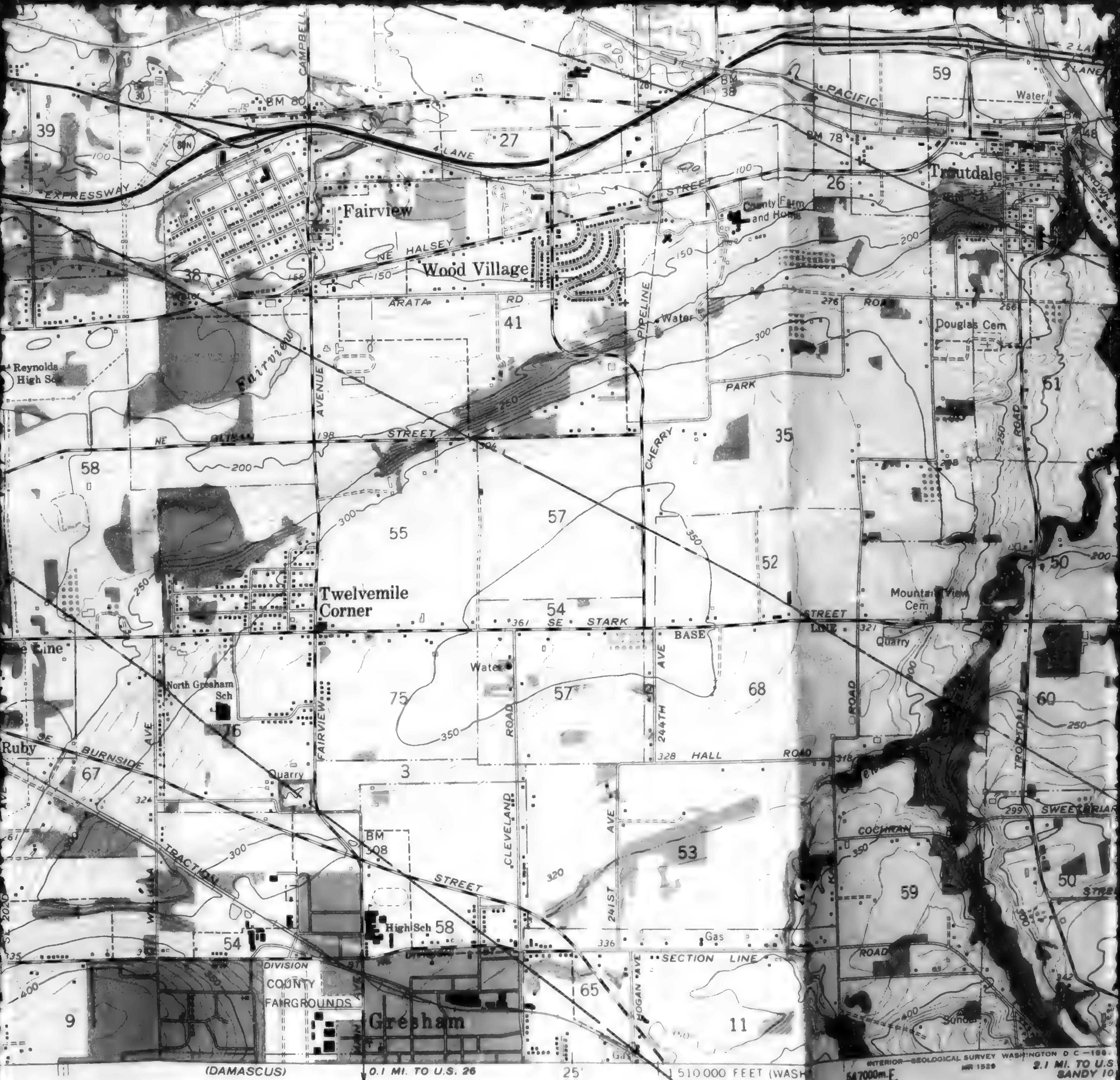
CONTOUR IN
DATUM IS M
DEPTH CURVES AND SOUNDIN
HORELINE SHOWN REPRESENTS TH
THE MEAN RANGE OF T

THIS MAP COMPLIES WITH NA
FOR SALE BY U. S. GEOLOGICAL SURVEY, DE
A FOLDER DESCRIBING TOPOGRAPHIC MA


Fairview
Wood Village
Troutdale
Twelvemile Corner
Gresham
County Farm and Home
Reynolds High Sch
North Gresham Sch
High Sch
COUNTY FAIRGROUNDS
Douglas Cem
Mountain View Cem
Quarry
Water
Gas
EXPRESSWAY
PACIFIC
NE HALSEY
ARATA RD
NE GLISAN STREET
SE STARK STREET
BASE LINE
HALL ROAD
SE BURNSIDE
TRACTION
DIVISION
SECTION LINE
CAMPBELL
FAIRVIEW AVENUE
CHERRY PARK
PIPELINE
244TH AVE
241ST AVE
CLEVELAND AVE
HOGAN AVE
TROUTDALE ROAD
COCHRAN
SWEETBRIAR
Ruby
(DAMASCUS)
0.1 MI. TO U.S. 26
25'
1 510 000 FEET (WASH
547000m.E.
2.1 MI. TO U.S.
SANDY 10
INTERIOR—GEOLOGICAL SURVEY WASHINGTON D C—196
MR 1529

SCALE 1:24 000

1 0 1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 .5 0 1 KILOMETER

CONTOUR INTERVAL 10 FEET
DATUM IS MEAN SEA LEVEL
DEPTH CURVES AND SOUNDINGS IN FEET—COLUMBIA RIVER DATUM
SHORELINE SHOWN REPRESENTS THE APPROXIMATE LINE OF MEAN HIGH WATER
THE MEAN RANGE OF TIDE IS APPROXIMATELY 1 FOOT

QUADRANGLE LOCATION

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
BY U. S. GEOLOGICAL SURVEY, DENVER 25, COLORADO OR WASHINGTON 25, D. C.
FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

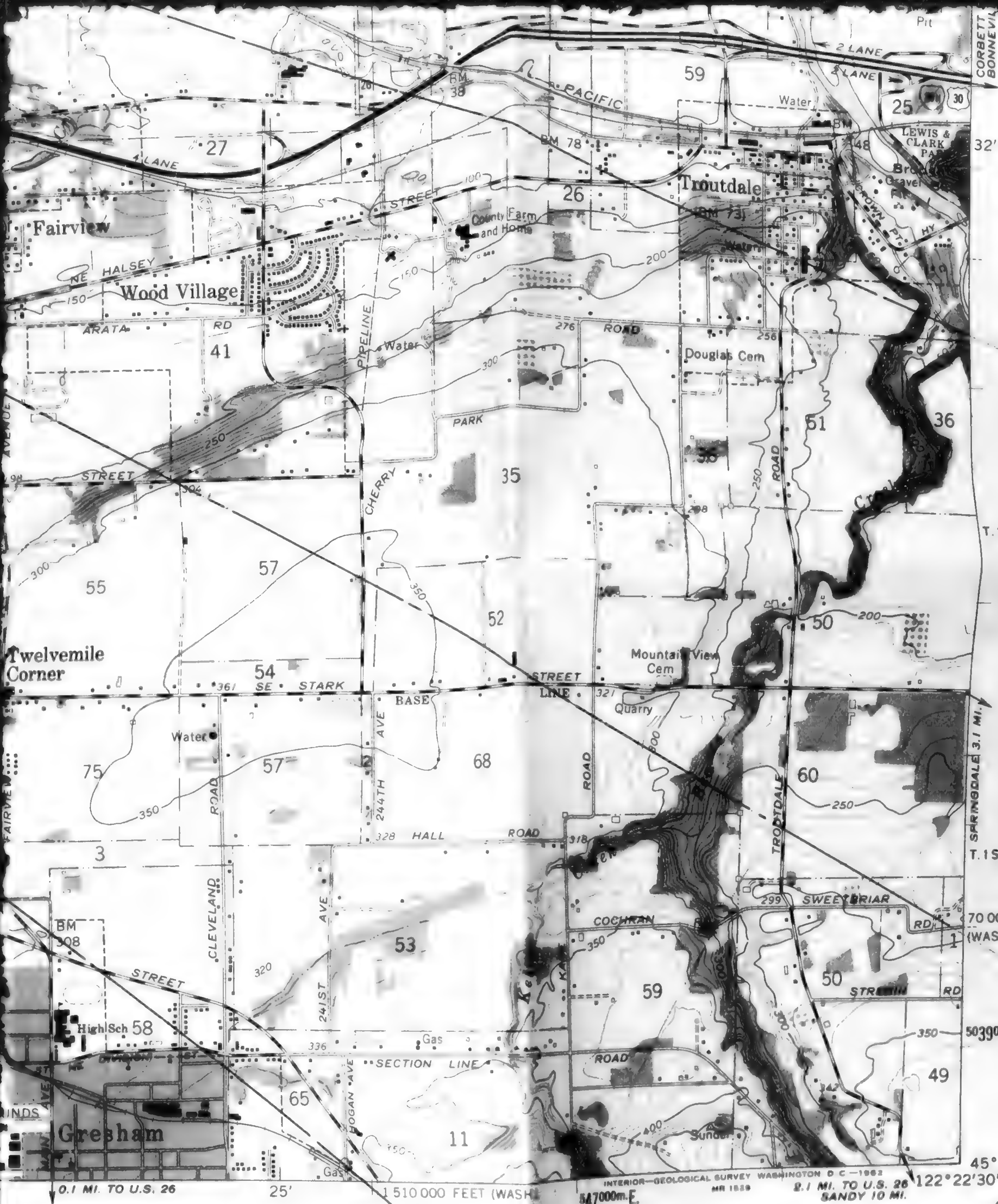
ROAD CLASSIFICATION

Heavy-duty ▬ Light-duty
Medium-duty ▬ Unimproved dirt
Interstate Route U.S. Route

# CAMAS, OREG.

SW/4 CAMAS 15' QUAD
N4530—W12222.5

1961


Troutdale
Fairview
Wood Village
Twelvemile Corner
Gresham
High Sch
Douglas Cem
Mountain View Cem
County Farm and Home
Lewis & Clark Park
Quarry
Water
Gas
Pit
PACIFIC
2 LANE
4 LANE
NE HALSEY
ARATA RD
STREET
PARK
CHERRY
PIPELINE
SE STARK STREET
BASE LINE
244TH AVE
HALL ROAD
TROUTDALE ROAD
SWEETBRIAR RD
COCHRAN
STRELIN RD
CLEVELAND
241ST AVE
HOGAN AVE
SECTION LINE ROAD
DIVISION ST
STREET
FAIRVIEW
AVENUE
Creek
Sunder
BM 38
BM 78
BM 73
BM 308
32'30"
45°30'
122°22'30"
T.1N.
T.1S.
70 000 FEET (WASH.)
5039000m.N.
547000m.E.
1 510 000 FEET (WASH.)
25'
0.1 MI. TO U.S. 26
2.1 MI. TO U.S. 26
SANDY 10 MI.
(SANDY)
SPRINGDALE 3.1 MI.
CORBETT
BONNEVIL
30
INTERIOR—GEOLOGICAL SURVEY WASHINGTON D.C.—1962
MR 1539
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1 MILE

5000 6000 7000 FEET

1 KILOMETER

EET

OLUMBIA RIVER DATUM

CCURACY STANDARDS
OLORADO OR WASHINGTON 25, D. C.
BOLS IS AVAILABLE ON REQUEST

QUADRANGLE LOCATION

ROAD CLASSIFICATION

| | |
|---|---|
| Heavy-duty | Light-duty |
| Medium-duty | Unimproved dirt |

Interstate Route U. S. Route State Route

## CAMAS, OREG.—WASH.

SW/4 CAMAS 15' QUADRANGLE
N4530—W12222.5/7.5

1961

8405

9

RECEIVED MAR 30 1967

FORM [illegible]

COMMISSIONERS
GLENN L. JACKSON, CHAIRMAN
MEDFORD
KENNETH N. FRIDLEY, MEMBER
WASCO
DAVID B. SIMPSON, MEMBER
PORTLAND

FLOYD QUERY, SECRETARY
SALEM

STATE OF OREGON
STATE HIGHWAY DEPARTMENT
SALEM 97310

FORREST COOPER
STATE HIGHWAY ENGINEER
R. L. PORTER
DEPUTY STATE HWY. ENGR.
G. E. ROHDE
CHIEF COUNSEL

March 29, 1967

Department of Fisheries
Stream Improvement Division
115 General Administration Bldg.,
Olympia, Washington 98501

Attention: Mr. Thor C. Tollefson
Director

Subject: Columbia River Bridge
Lewis & Clark Hwy.-Sandy
Boulevard Section
E. Portland Freeway (I-205)
Br. No. 9555

Gentlemen:

In reply to your letter of March 9, 1967, we are attaching the completed application forms issued by the Departments of Fisheries and Game regarding the subject structure.

You will note that in addition to the forms submitted, we are attaching a print of our Sketch B-227 which is the preliminary plan and elevation of the subject structure. With the exception of the spans on which definite clearances are shown on this print, the span lengths of the structure are tentative and subject to change. In the lower lefthand corner of this print, an arrangement of the roadway width is delineated.

If more information regarding this structure is required, please notify us.

Very truly yours,

Ivan D. Merchant

Ivan D. Merchant
Bridge Engineer

TCR:mb
Atts.
cc: Forrest Cooper (w/att.)
R. L. Porter "
Tom Edwards "
V. D. Wolfe "
Department of Game
600 N. Capitol Way
Olympia, Wash. 98501 (w/att.)

NOTED
FORREST COOPER

RECEIVED
MAR 29 1967
OFFICE OF
STATE HIGHWAY ENGINEER

APPLICATION FORM TO THE DEPARTMENT OF FISHERIES AND THE DEPARTMENT OF GAME ON PROPOSED HYDRAULIC PROJECTS......

Department of Fisheries
and
Department of Game

Gentlemen:

The following is an application for approval in accordance with the State Laws.

NAME: Oregon State Highway Department PHONE: 364-2171

ADDRESS: Oregon State Highway Bldg. Salem, Oregon 97310
(Street Number or R.F.D.) (City) (Zip Code)

LOCATION OF WORK: SW$\frac{1}{4}$ Sec. 10 Tp. 1 N. Range 2E W.M.
(smallest legal subdivision) (E or W)

Multnomah, Oregon and Clark, Washington
(County)

ROAD DISTANCE AND DIRECTION FROM NEAREST TOWN: South end near the Portland Airport, North end of structure just east of Vancouver, Washington. (See att. map)

STREAM: Columbia River
(Name) (Tributary of)

TYPE OF WORK: Construction of bridge
(Culvert, chann' change, drainage, gravel operation, flood or erosion control)

DESCRIPTION OF WORK: See attached Sketch B-227
(Include procedure and equipment used)
103' roadway width approx. 9600' long. Critical clearances at channels as shown on Sketch B-227.

PROPOSED STARTING DATE: 1969 or later FINISHING DATE: 1971 or later

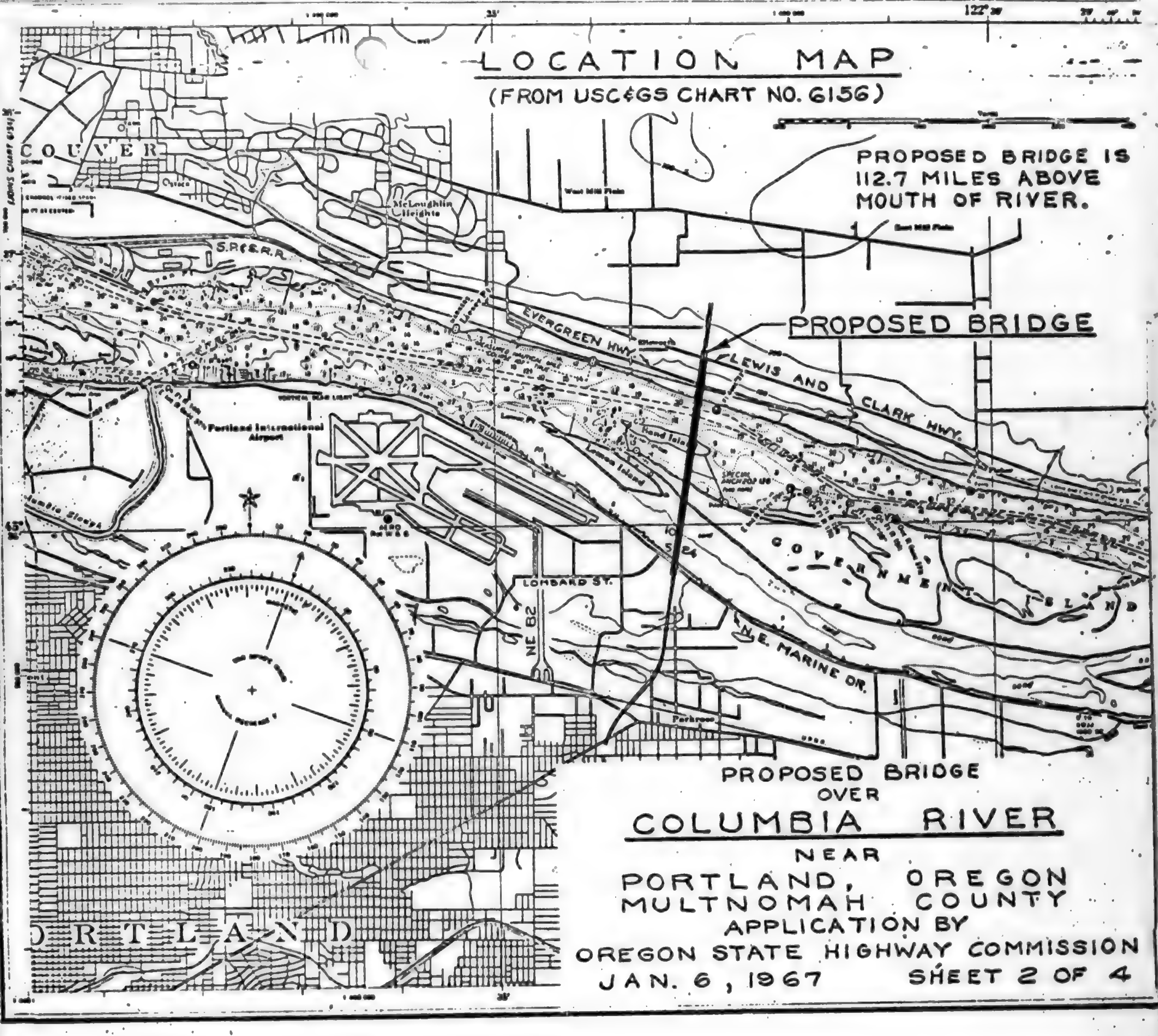
PARTICIPATING ORGANIZATION (if any): Bureau of Public Roads

IT IS AGREED THAT NO WORK WILL BE STARTED ON THE PROJECT DESCRIBED ABOVE UNTIL A SIGNED APPROVAL IS RECEIVED FROM THE TWO DEPARTMENTS.

DATE: March 29, 1967
(Signature)

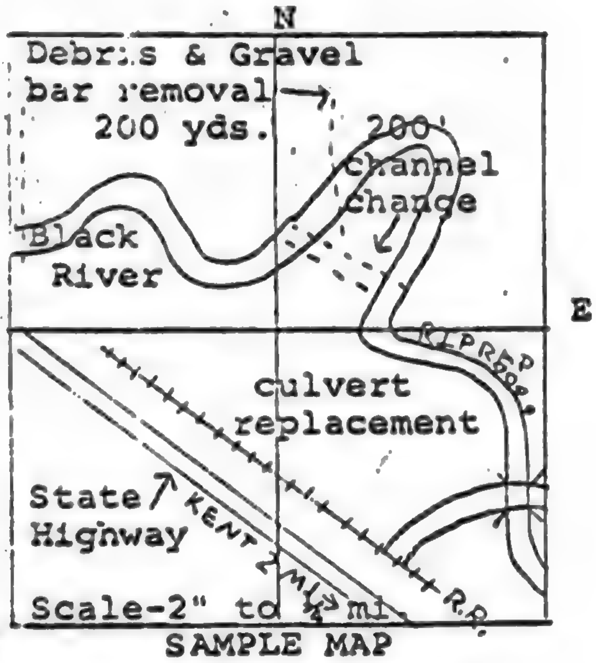
NOTE: Any additional information may be placed on the back of this sheet. If necessary more complete plans and specifications will be requested before granting final approval.

(PLEASE COMPLETE ATTACHED MAP)



LOCATION MAP
(FROM USC&GS CHART NO. 6156)
PROPOSED BRIDGE IS 112.7 MILES ABOVE MOUTH OF RIVER.
PROPOSED BRIDGE
COUVER
McLoughlin Heights
S.P.&S.R.R.
EVERGREEN HWY.
LEWIS AND CLARK HWY.
Portland International Airport
GOVERNMENT ISLAND
LOMBARD ST.
NE 82
N.E. MARINE DR.
PORTLAND
122° 30'
35'

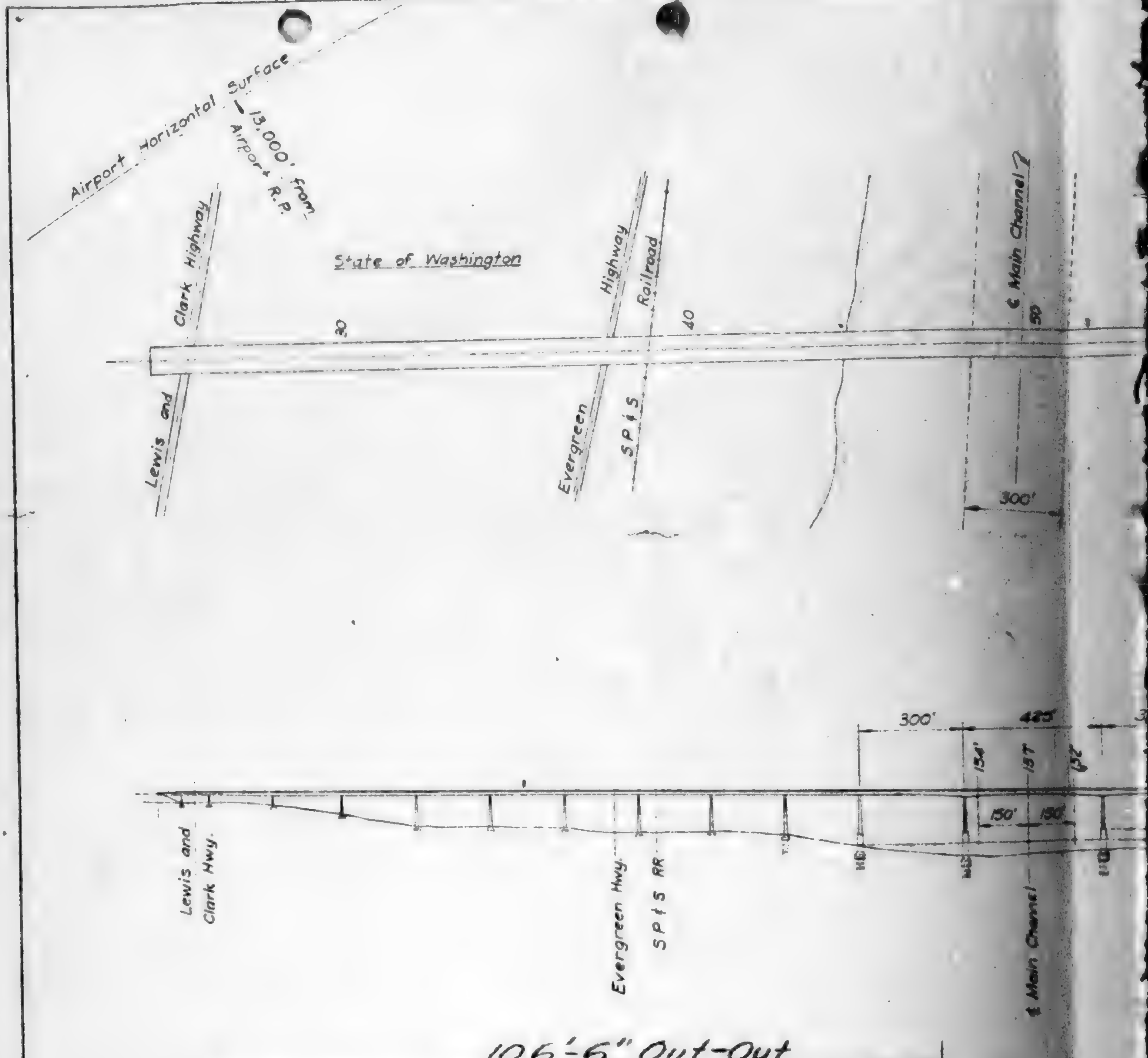
PROPOSED BRIDGE
OVER
COLUMBIA RIVER
NEAR
PORTLAND, OREGON
MULTNOMAH COUNTY
APPLICATION BY
OREGON STATE HIGHWAY COMMISSION
JAN. 6, 1967 SHEET 2 OF 4

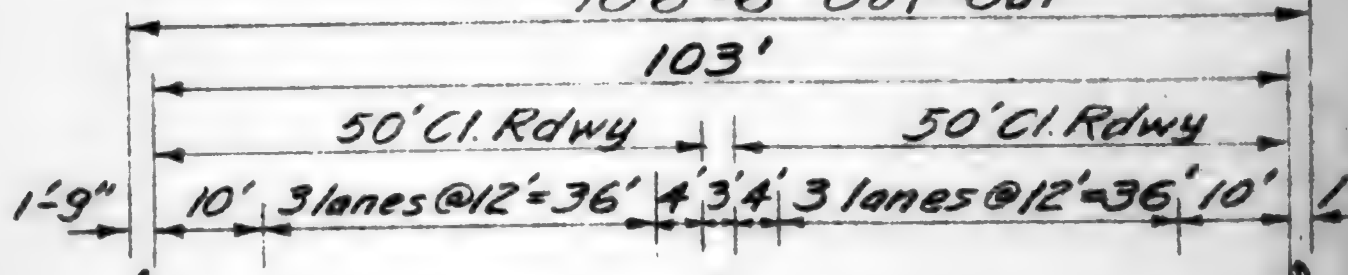


N
E
Debris & Gravel bar removal 200 yds.
200' Channel change
Black River
RIPRAP
culvert replacement
State Highway
KENT 2 MI.
R.R.
Scale-2" to ¼ mi.

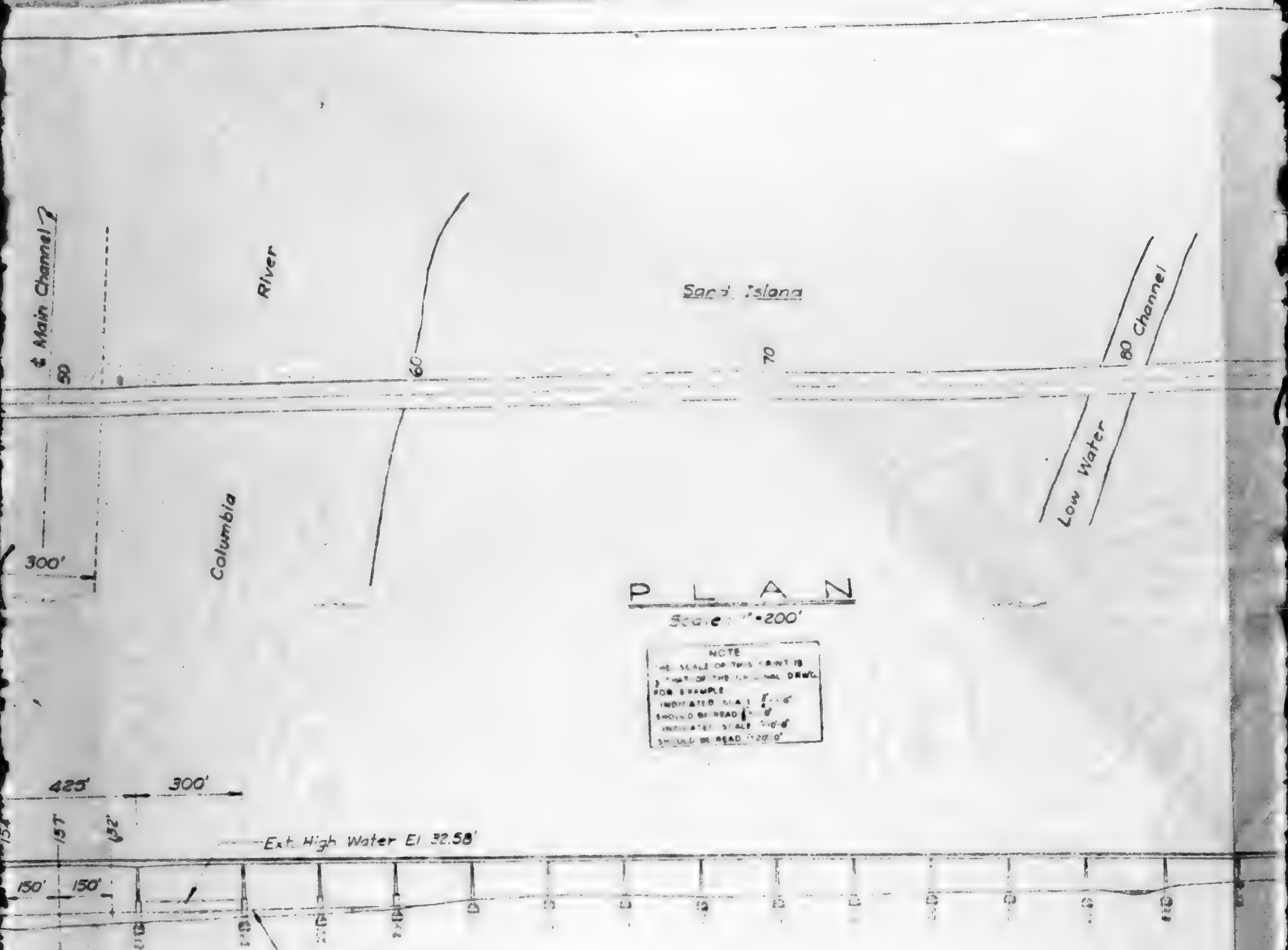
SAMPLE MAP

The sample map to the left indicates the type of information which should be provided. Any scale may be used and the space does not necessarily have to represent a Section. Please indicate clearly all pertinent data on the space provided above for a sketch map-type of project, area of stream involved, landmarks, distance and direction to nearest town, etc.


Airport Horizontal Surface
13,000' from Airport R.P.
State of Washington
Lewis and Clark Highway
Evergreen Highway
SP&S Railroad
30
40
50
℄ Main Channel
300'
300'
425'
154'
157'
152'
150'
150'
Lewis and Clark Hwy.
Evergreen Hwy.
SP&S RR
℄ Main Channel

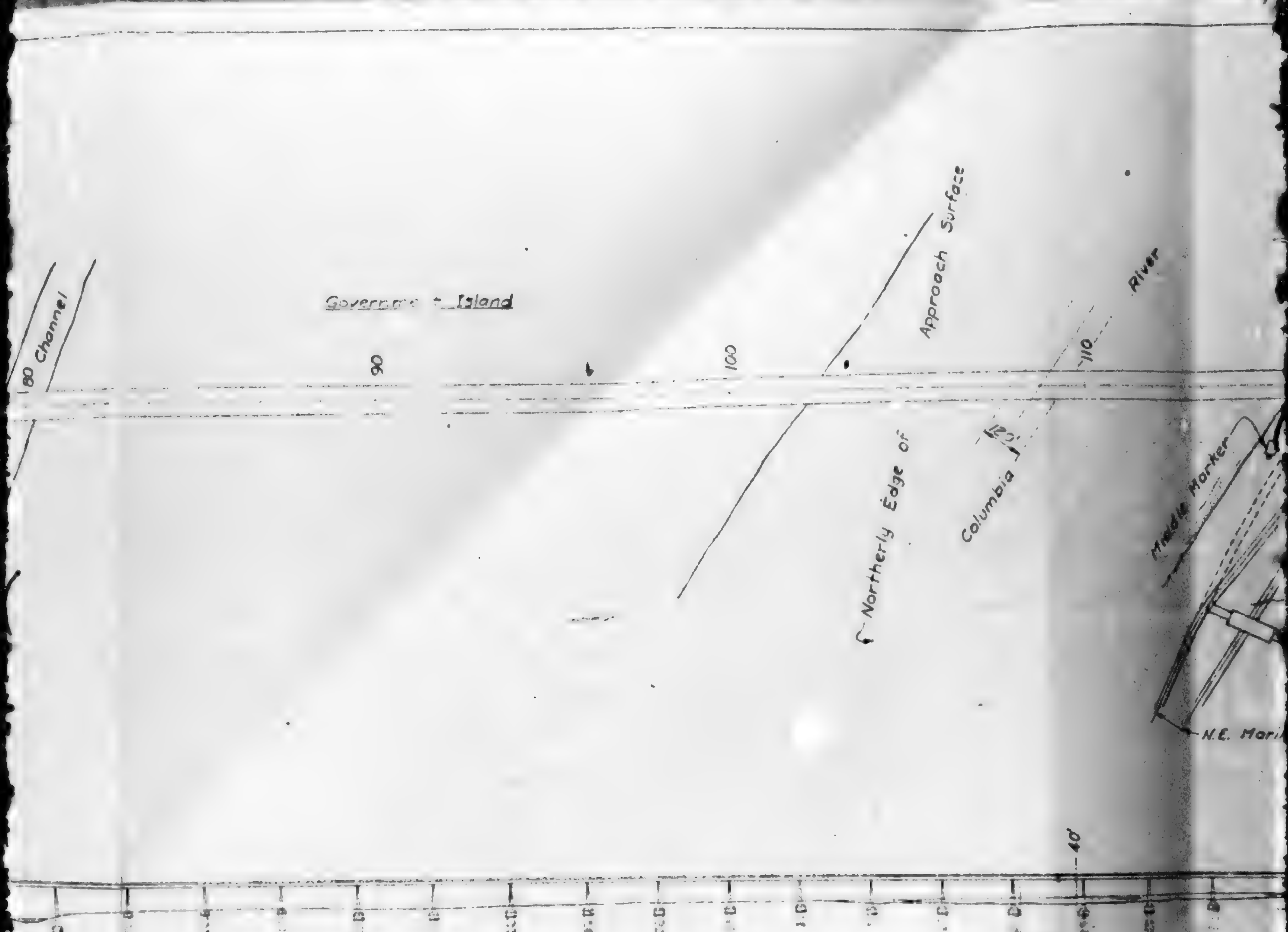

106'-6" Out-Out
103'
50' Cl. Rdwy
50' Cl. Rdwy
1'-9"
10'
3 lanes @ 12' = 36'
4'
3'
4'
3 lanes @ 12' = 36'
10'
1'-9"

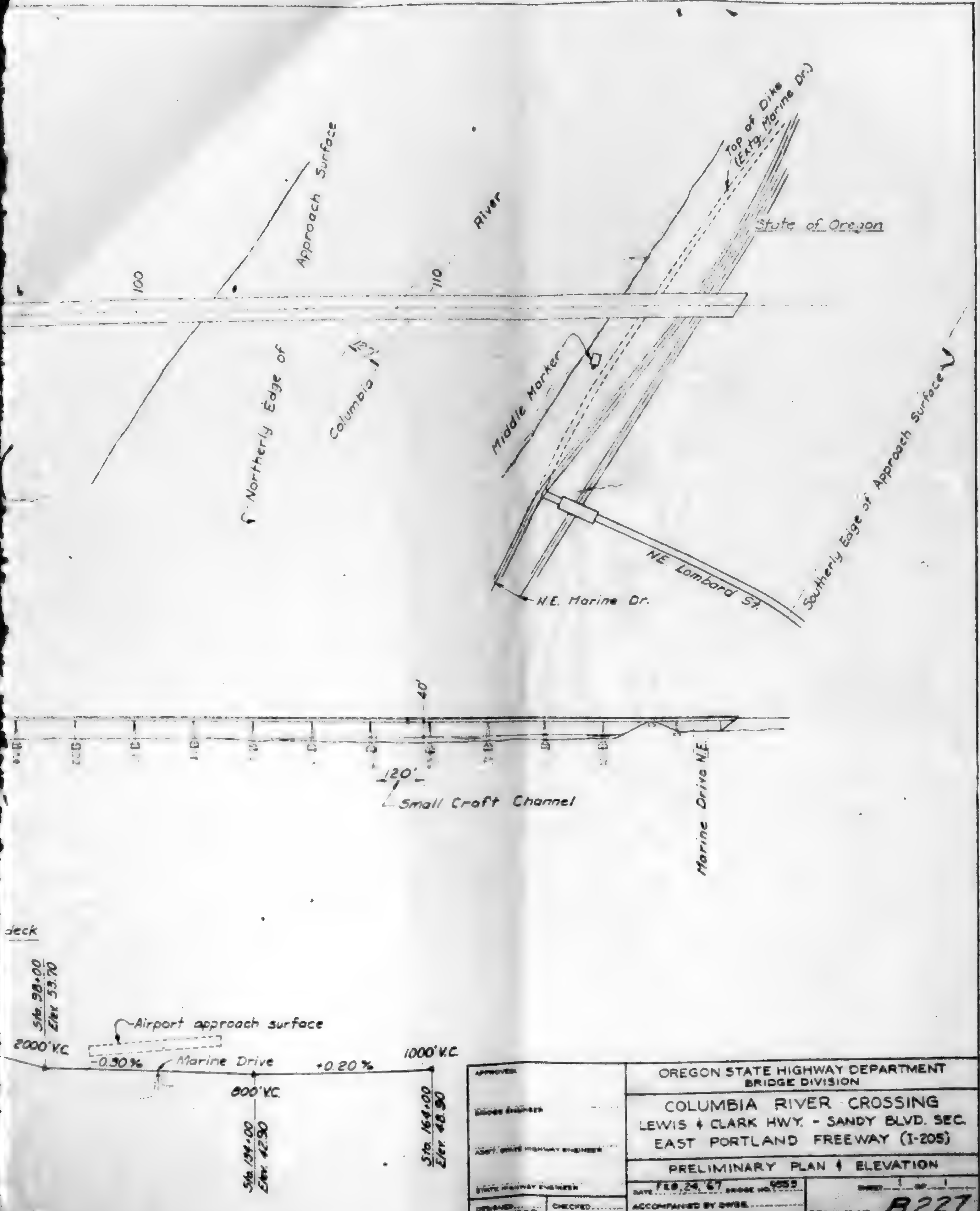
TYPICAL ROADWAY SECTION
Scale 1" = 20'-0"



℄ Main Channel
River
Sand Island
Columbia
50
60
70
80 Channel
Low Water
300'
PLAN
Scale: 1" = 200'
425'
300'
Ext. High Water El. 32.58'
15'
13'
32'
150'
150'
Mean Low Water El. 2.51'
(Mean Sea Level El. 0.0')
℄ Main Channel
ELEVATION
Scale: 1" = 200'
-2.7%
Sta. 26+00
Elev. 186.00
800' V.C.
17'
Elev. 158
-9"

NOTE
THE SCALE OF THIS PRINT IS
½ THAT OF THE ORIGINAL DRWG.
FOR EXAMPLE
INDICATED SCALE ½" = 1'-0"
SHOULD BE READ ¼" = 1'-0"
INDICATED SCALE 1" = 10'-0"
SHOULD BE READ 1" = 20'-0"


80 Channel
Government Island
90
100
110
Approach Surface
Northerly Edge of
Columbia
River
125'
Middle Marker
N.E. Mari
40
120'
Small Craft Channel
Sta. 26+00
Elev. 186.00
800' V.C.
-0.45 %
Elev. 138'
17'
Sta. 58+90 ± = Intersection of deck with airport horizontal surface.
Elev. 175'
2600' V.C.
Sta. 53+00
Elev. 173.85
-2.67 %
Sta. 98+00
Elev. 53.70
2000' V.C.
Airport approach surface
-0.30 %
Marine Drive
+0.20 %
800' V.C.
Sta. 134+00
Elev. 42.90
1000' V.C.
Sta. 164+00
Elev. 48.90
GRADE LINE DIAGRAM
Scale: Horiz. 1" = 1,000'
Vert. 1" = 100'
CHECKED
SALE


Top of Dike
(Extg. Marine Dr.)
State of Oregon
Approach Surface
River
100
110
Northerly Edge of
Columbia
Middle Marker
Southerly Edge of Approach Surface
N.E. Lombard St.
N.E. Marine Dr.
40'
120'
Small Craft Channel
Marine Drive N.E.
deck
Sta. 98+00
Elev. 53.70
Airport approach surface
2000' V.C.
-0.30%
Marine Drive
+0.20%
1000' V.C.
800' V.C.
Sta. 159+00
Elev. 42.90
Sta. 164+00
Elev. 48.90

OREGON STATE HIGHWAY DEPARTMENT
BRIDGE DIVISION

COLUMBIA RIVER CROSSING
LEWIS & CLARK HWY. - SANDY BLVD. SEC.
EAST PORTLAND FREEWAY (I-205)

PRELIMINARY PLAN & ELEVATION

APPROVED:
BRIDGE ENGINEER
ASS'T. STATE HIGHWAY ENGINEER
STATE HIGHWAY ENGINEER

DESIGNED
DRAWN WOOD
CHECKED
CALC. BOOK

DATE FEB. 24, '67 BRIDGE NO. 9555
ACCOMPANIED BY DWGS.

SHEET 1 OF 1
DRAWING NO. B227

8905

8

RECEIVED
FEB 20 1967

DEPARTMENT OF THE ARMY
PORTLAND DISTRICT, CORPS OF ENGINEERS
628 PITTOCK BLOCK
PORTLAND, OREGON 97205

REFERRED TO
Edwards
BY DEPUTY STATE HIGHWAY ENGINEER
See me please

NPPND-WM

REFERRED TO
admin
BY SECRETARY

13 FEB 1967

Klaboe
info

State of Oregon
State Highway Department
Salem, Oregon 97310

Gentlemen:

Please refer to your letter of 11 January 1967 and the inclosed plans of the I-205 crossing of the Columbia River.

In developing information on the proposed crossing, this office has held preliminary talks with representatives of the FAA and the Port of Portland. It is understood there may be coordination required between your agency and the Port of Portland as to the location of the South Channel crossing. It is suggested that this coordination between two state agencies should be accomplished prior to public advertisement of your proposal by this office.

It is difficult to anticipate all of the responses of navigation interests to our public notice. However, preliminary investigation reveals that 152' (CRD) x 400' would be a good starting point for advertising on the main span. The responses to the South Channel span proposal are difficult to anticipate. It is anticipated that a 48' (CRD) clearance would probably have little opposition from commercial interests. Clearances less than that would probably bring forth varying degrees of opposition. It is noted that an upstream move of the South Channel span would probably make possible an increase of vertical clearance (over and above the 40' proposed in your letter) and still allow flexibility in the planning for future use and expansion of the Portland Airport.

Further action on your letter of 11 January 1967 will be withheld pending reply to this letter.

NOTED
F.B. KLABOE

Sincerely yours,

William J. Talbott
WILLIAM J. TALBOTT
Colonel, Corps of Engineers
District Engineer

RECEIVED
FEB 14 1967
OFFICE OF
STATE HIGHWAY ENGINEER

RECEIVED
FEB 14 1967
OREGON
STATE HIGHWAY COMMISSION

Copy furnished:
Federal Aviation Agency
Rm 108, FAA Bldg.
Boeing Field
Seattle, Washington 98108

cc Morgan
2-17-67

8905

RECEIVED
FEB 2 - 1967

[illegible]

Cmsl
a/m
EP7
Spec

1381

Salem, Oregon 97310
February 1, 1967

I-205, Columbia River
Bridge

Mr. F. D. Morgan
Construction Engineer
BUILDING

Attention D. J. Barbee

I enclose a copy of a letter to Mr. Cooper from Mr. George M. Baldwin, General Manager of the Port of Portland. Mr. Baldwin suggests that we study the possibility of obtaining a 100:1 slope on the easterly end of the north runway.

Please make such a determination and advise me of the results. He also suggests that we set up a meeting similar to the ones held for the Marquam and Fremont Bridges concerning the local maritime interests in the river channel clearances.

Mr. Merchant should handle this matter but not until we have checked the clearances possible with the various alternates for the south end of the bridge.

F. B. Klaboe
Assistant State Highway Engineer

FBK:arb

Enc.

cc: Victor D. Wolfe
Ivan Merchant (Enc.)

Commissioners
HOWARD B. SOMERS
*President*
HAROLD S. HIRSCH
*Vice-President*
ERLING E. JACOBSEN
*Secretary*
LEE E. CALDWELL
*Treasurer*
DONALD G. DRAKE
RAYMOND M. KELL
DENNIS J. LINDSAY
LEW S. RUSSELL
ROBERT B. WILSON

*General Manager*
GEORGE M. BALDWIN

*Ass't General Manager*
R. A. NEUMEISTER
*Mgr., Aviation Dept.*
J. V. FRYBERGER
*Mgr., Industrial Development Dept.*
L. E. ARNOLD, JR.
*Mgr., Marine Dept.*
A. J. HEINEMAN
*Comptroller*
E. W. BAUER
*Mgr., Research and Planning Dept.*
W. S. DIRKER
*Chief Engineer*
R. F. DOW
*Mgr., Public Affairs Dept.*
W. G. PROCTOR

THE PORT OF PORTLAND

Swan Island, P.O. Box 3529, Portland, Oregon 97208

Telephone 503-285-5271

In reply refer to:
RFD:ENG

January 20, 1967

REFERRED TO
BY DEPUTY STATE HIGHWAY ENGINEER

See me please

Oregon State Highway Department
Salem, Oregon 97310

Attention: Mr. Forrest Cooper

Gentlemen:

SUBJECT: I-205 COLUMBIA RIVER BRIDGE

Reference is made to the meeting on December 20, 1966 at the Mallory Hotel attended by the Highway Commission and staff members and the Port Commission and staff members during which the location of the subject bridge was discussed.

It is our understanding that the Highway Department will study the Port's request that (1) the bridge structure be relocated easterly (upstream) from the proposed location a sufficient distance so that a line 17 feet above the deck will lie beneath a 100 to 1 slope from the easterly end of the north parallel runway (Runway 10L-28R) and (2) the Oregon approach to the bridge be lowered to the minimum practical height at its intersection with Marine Drive, while vertical clearance over the main channel and also over the side channel south of Government Island is maintained for maritime requirements.

Upon completion of the Port's review of your study, we will be happy to arrange a meeting with the local maritime interests in an effort to finalize the river and side channel clearances. A meeting similar to the ones held in the Port office building for the Marquam and Fremont Bridges has been discussed with members of your staff. We believe these previous meetings were very helpful in determining the actual requirements of the industry.

Do not hesitate to contact me when we can be of any assistance in this matter.

Very truly yours,

THE PORT OF PORTLAND

George M Baldwin

GEORGE M. BALDWIN
General Manager

RECEIVED
JAN 27 1967
OFFICE OF
STATE HIGHWAY ENGINEER

NOTED
FORREST COOPER

8905

8

RECEIVED
JAN 17 1967
FOR FILING

January 17, 1967

Mr. W. A. Bulley
District Traffic Engineer
Washington Department of Highways
4200 Main Street
Vancouver, Washington

Dear Mr. Bulley:

The matter of signing and lighting for the Columbia River crossing of I-205 was the subject of a recent discussion between your office and our Metropolitan Division in Portland. In this discussion it was indicated to you that we would advise you of our intentions concerning these matters, particularly the provision of signing structures for northbound traffic approaching the US830 Interchange.

At the station indicated on the attached sketch map, we will provide an overhead sign structure spanning the entire width of the bridge deck. There will be room enough on this structure for the necessary signing facing northbound and southbound traffic.

The signs facing northbound traffic must be such that (due to restricted air clearances) the maximum sign height will be six feet. Appropriate distance signs will be installed on each side of the river as discussed at the recent meeting.

We also wish to advise you that the illumination on the river crossing structure proper will be included as part of the bridge contract. This includes that lighting necessary for the deceleration and acceleration lanes of the US830 Interchange. We will utilize the AASHO design standards for illumination on this structure.

The exact status of scheduling plans and construction on the bridge is still somewhat in doubt. Negotiations with various governmental agencies concerning location and clearances preclude any scheduling at the moment. When these details are settled, an agreement will be initiated.

Very truly yours,

Forrest Cooper
State Highway Engineer

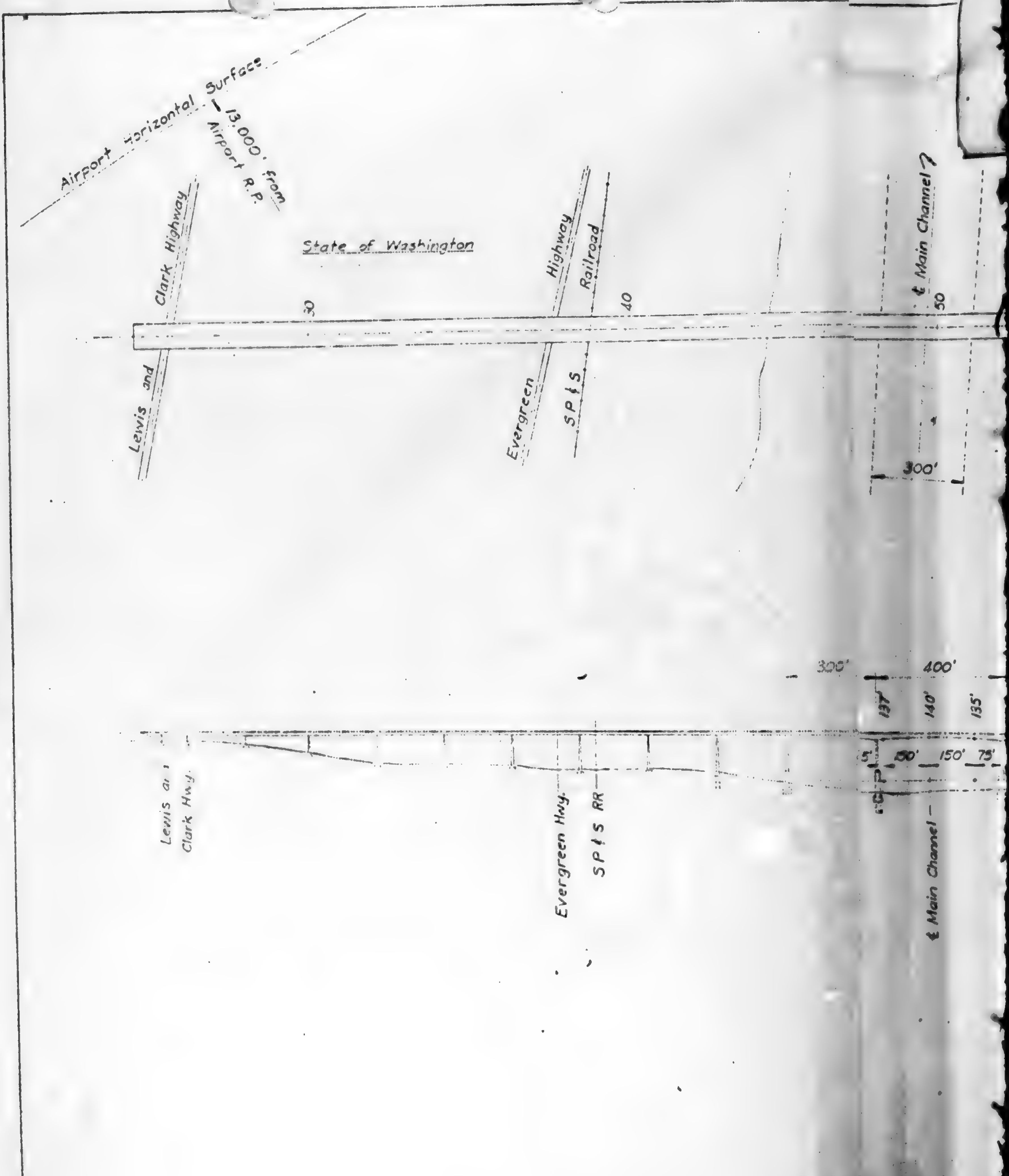
By

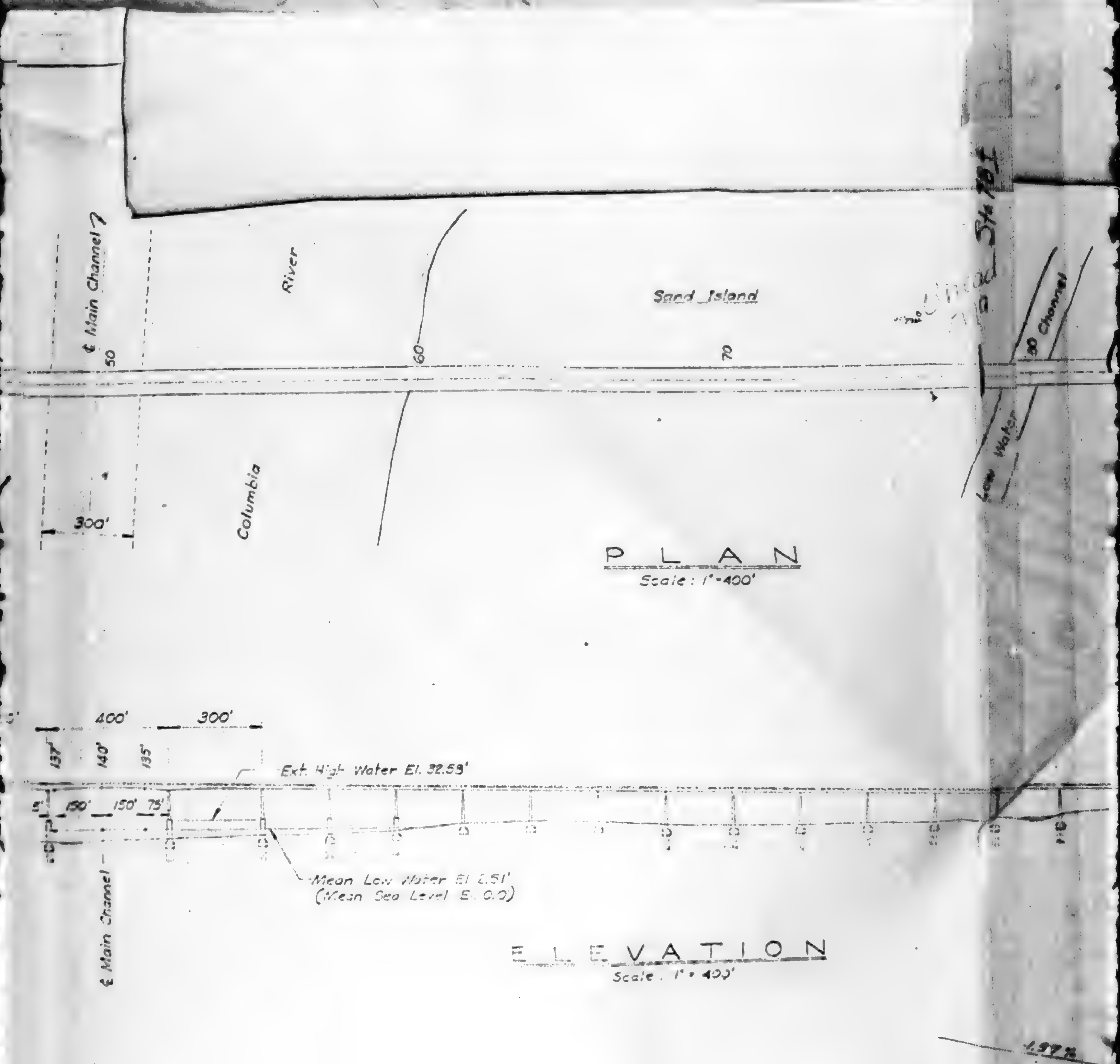
Tom Edwards
Assistant State Highway Engineer

Attachment

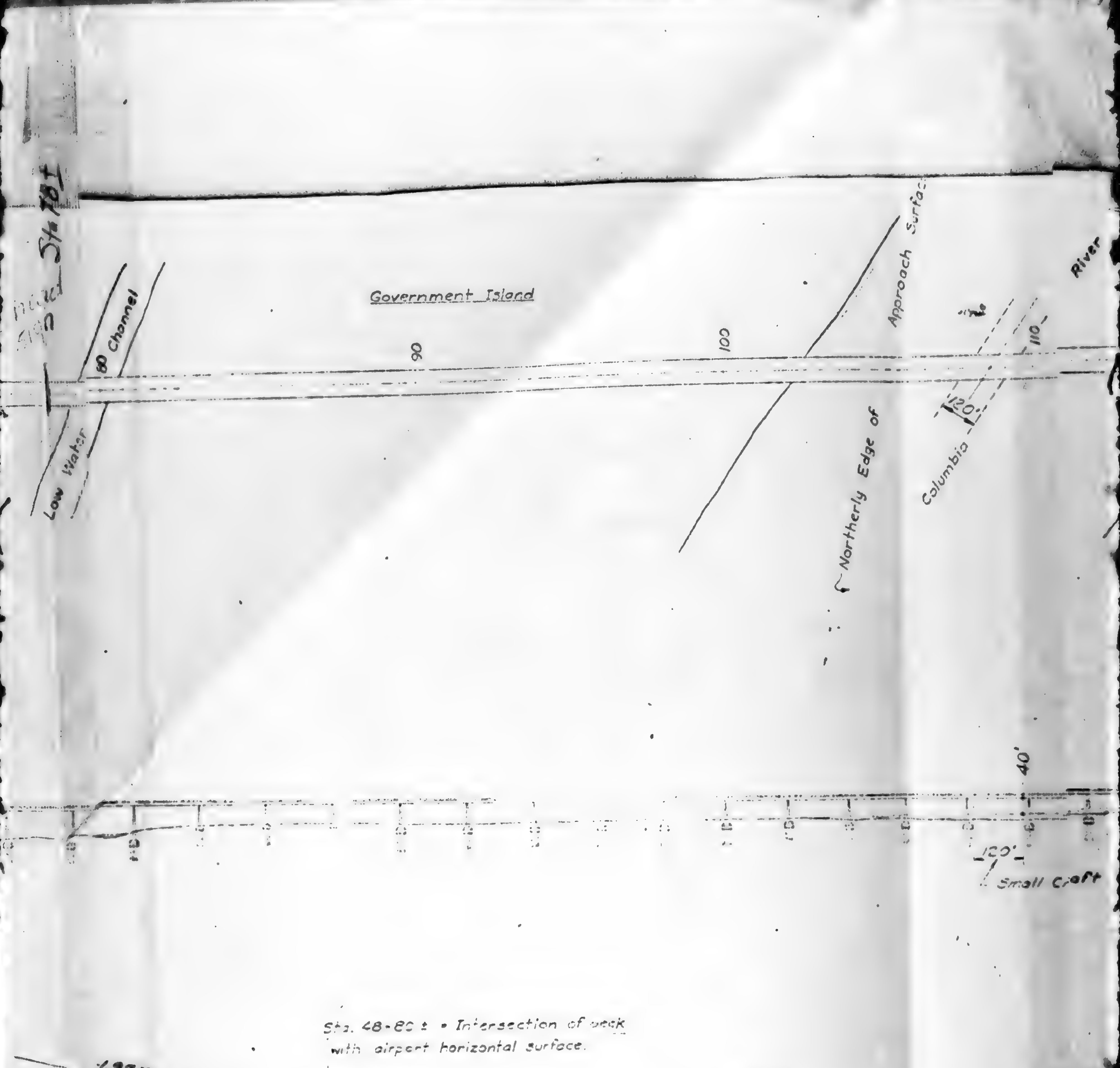
bc Forrest Cooper
R. L. Porter
Victor D. Wolfe
F. B. Crandall
Ivan Merchant
A. E. Johnson

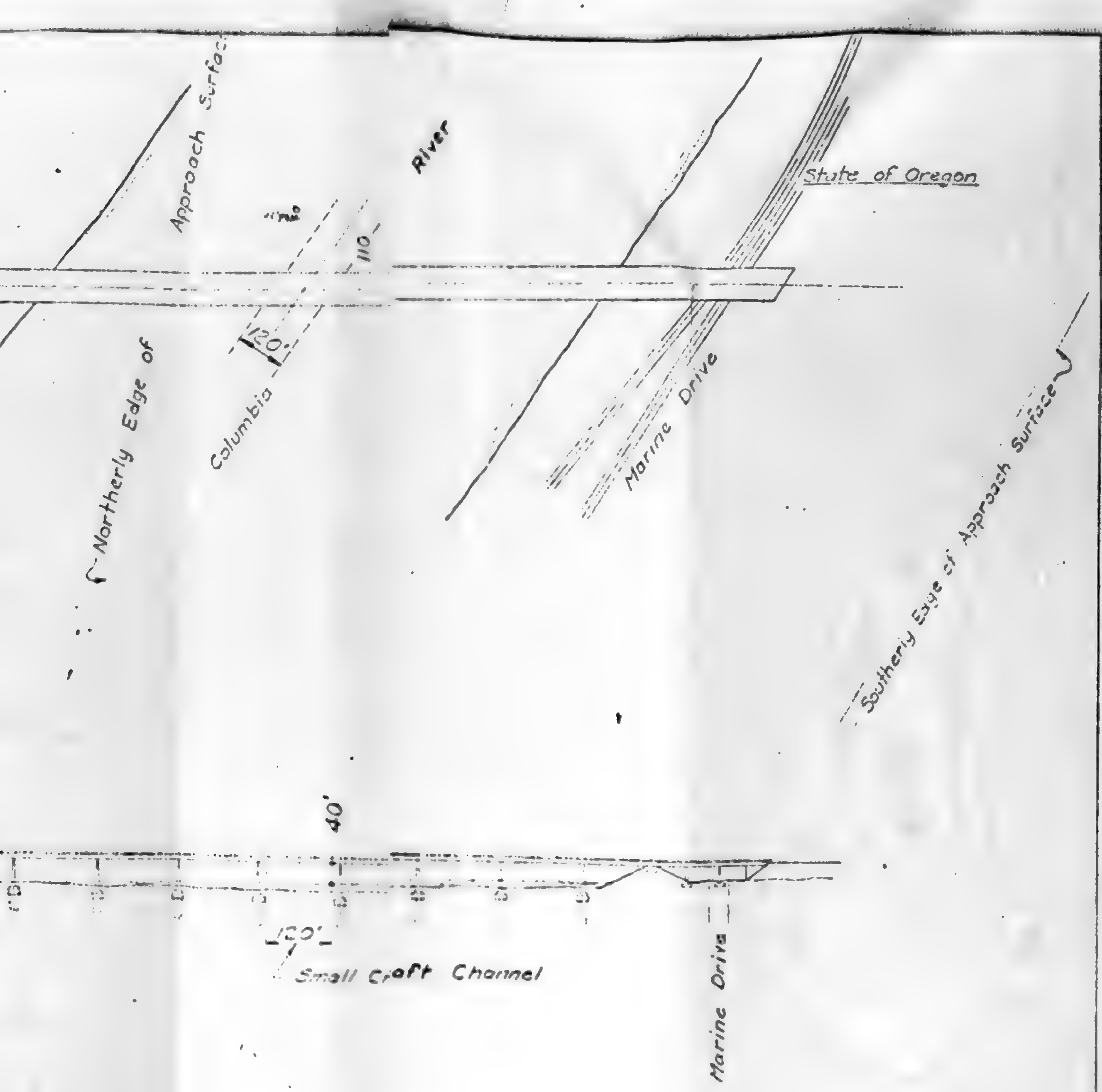
LEG:njc/TE:ja


Airport Horizontal Surface
13,000' from Airport R.P.
State of Washington
Lewis and Clark Highway
Evergreen Highway
SP & S Railroad
30
40
50
℄ Main Channel
300'
300'
400'
137'
140'
135'
5'
150'
150'
75'
Lewis and Clark Hwy.
Evergreen Hwy.
SP & S RR
℄ Main Channel



℄ Main Channel
River
Sand Island
Sta 781
90 Channel
50
60
70
Low Water
300'
Columbia
PLAN
Scale: 1" = 400'
400'
300'
137'
140'
135'
Ext. High Water El. 32.58'
5'
150'
150'
75'
Mean Low Water El 2.51'
(Mean Sea Level El. 0.0)
℄ Main Channel
ELEVATION
Scale: 1" = 400'
4.97%
17'
Elev. 1


Sta 78±
Government Island
80 Channel
Low Water
90
100
110
Northerly Edge of Approach Surface
Columbia River
120'
40'
120'
Small Craft
Sta. 48+80 ± • Intersection of deck with airport horizontal surface.
4.97%
Elev. 175'
Elev. 158'
17'
Sta. 51+20 Elev. 152.51
200' VC
600' VC
Airport approach surface
-0.30%
Marine Drive
0.0%
Sta. 102+00 Elev. 52.43
Sta. 120+00 Elev. 47.03
GRADE LINE DIAGRAM
Scale: Horiz. 1" = 2000' Vert. 1" = 200'


Approach Surface
River
State of Oregon
110
120'
Northerly Edge of
Columbia
Marine Drive
Southerly Edge of Approach Surface
40'
120'
Small Craft Channel
Marine Drive

VC
approach surface
arine Drive 0.0%

**PRELIMINARY COPY**
**SUBJECT TO CHANGE**

| | |
|---|---|
| APPROVED | OREGON STATE HIGHWAY DEPARTMENT<br>BRIDGE DIVISION |
| BRIDGE ENGINEER | COLUMBIA RIVER CROSSING<br>LEWIS & CLARK HWY. - SANDY BLVD. SEC.<br>EAST PORTLAND FREEWAY (I-205) |
| ASST. STATE HIGHWAY ENGINEER | PRELIMINARY PLAN & ELEVATION |
| STATE HIGHWAY ENGINEER | DATE DEC. 23, '64 BRIDGE NO. 9553 |
| DESIGNED<br>DRAWN WOOD | CHECKED<br>CALC. BOOK |
| ACCOMPANIED BY DWGS. | SHEET 1 OF 1<br>DRAWING NO. B-210 |

FORM E-30X—50M—2-66 SP*23500-734

**OREGON STATE HIGHWAY DEPARTMENT**

INTER-DEPARTMENT CORRESPONDENCE

Portland, Oregon 97213

January 11, 1967

SUBJECT: East Portland Freeway (I-205)
Illumination and Signing

To:
Mr. L. E. George
Assistant Traffic Engineer
State Highway Building
Salem, Oregon 97310

I have a copy of your letter to Mr. Edwards reporting on our meeting with Messrs. Bill Bulley and Bill Kingman, of the Washington Department of Highways, on January 3.

Today I received a letter from Mr. Bulley, District Engineer, together with a copy of a resume' of our meeting which was prepared by Mr. Kingman. Copies of these letters are enclosed for your information. Mr. Kingman's letter is, essentially, as outlined in your letter of January 9, but I believe we should advise Mr. Bulley officially that the proposed plan for signing and lighting is acceptable to us.

Attention is also directed to Mr. Bulley's request that he be given any information we have concerning a delay of I-205 in Oregon and information concerning scheduling for completion of plans for the bridge and the construction of thereof. Also, Mr. Bulley has requested any information we might have concerning an agreement between the State of Washington and the State of Oregon for the construction of the I-205 Columbia River Bridge.

You have indicated by telephone conversation that you propose to prepare a draft for Mr. Edwards' signature concerning signing and illumination, and I would request, if possible, that the additional information requested by Mr. Bulley be also contained in such a letter.

RECEIVED
JAN 12 1967
OFFICE OF
STATE HIGHWAY ENGINEER

[illegible]

A. E. Johnson
Metropolitan Engineer

RECEIVED
JAN 13 1967
TRAFFIC ENGINEERING

Bud
Discuss

AEJ:sh
Enclosure

cc Tom Edwards (Enc)

NOTED
L. E. GEORGE

**STATE OF WASHINGTON**
DANIEL J. EVANS, GOVERNOR

THE SEAL OF THE STATE OF WASHINGTON 1889

**WASHINGTON**
**STATE HIGHWAY COMMISSION**
**DEPARTMENT OF HIGHWAYS**

OFFICE OF DISTRICT ENGINEER
4200 MAIN STREET
VANCOUVER, WASHINGTON

January 9, 1967

Mr. Al Johnson
Division Engineer
Metropolitan Division
Department of Highways
State of Oregon
9200 S. E. McLoughlin Blvd.
Portland, Oregon

I-205
Signing and Illumination
Coordinating Meeting

Dear Sir:

Reference is made to the meeting which was held in your office between representatives of the State of Oregon and the State of Washington on January 3rd, 1967, to discuss signs, signing and illumination for proposed Interstate 205 in the vicinity of the Columbia River Bridge. In accordance with our discussion at that meeting I am attaching herewith a copy of a resume of the meeting which has been prepared by Mr. Kingman of this office.

We have submitted to our Headquarters division in Olympia for their concurrence the proposed plan for the signing as mentioned in the fourth paragraph of Mr. Kingman's memo. Please be assured that you will be advised when we receive our Headquarters' concurrence in this proposal.

The day following the meeting I heard on the morning news that Interstate 205 in Oregon could be delayed by reason of the recent Federal cutback in funds. If this is correct and the Interstate Bridge is involved in the delay, I would appreciate receiving from you any information that you may have concerning the present scheduling for completion of the plans for the bridge and the construction thereof.

I wish to extend to you my appreciation for the cooperation which you have extended us in keeping us informed of your plans and progress on this facility. Coordination and exchange of information will certainly help to eliminate a lot of unnecessary changes and I am sure make the work of both parties more efficient and expeditious.

Very truly yours,

W a Bulley

W. A. BULLEY, P.E.
District Engineer

METROPOLITAN ENGINEER
RECEIVED
JAN 11 1967
ME AME AME MOE MOE MTE

WAB:am
Enc.
c.c. - Mr. R. G. Still
Mr. W. O. Kingman

4339—10-63—25M. 81 63.

## WASHINGTON
## STATE HIGHWAY COMMISSION
## DEPARTMENT OF HIGHWAYS

**Inter-departmental Communication**

*Office at* Vancouver

*Date* January 4, 19 67

*To* Mr. W. A. Bulley

*From* Mr. W. O. Kingman:am WOK

*Subject* Meeting with the Oregon State Highway Department January 3, 1967

You have asked me to give you a resumé of a meeting which you and I attended at the Oregon State Highway Department Metro-Division in Portland on January 3, 1967.

Also in attendance, from the Oregon State Highway Department, were Messrs: Al Johnson, Division Engineer; Bud George, Assistant Traffic Engineer for the State of Oregon; and Dennis Peterson, District Traffic Engineer for Metro-Division.

At this time we discussed the signing of I-205 as it mutually concerns the Oregon-Washington State Highway Departments.

For northbound traffic into the State of Washington Bud George proposed that two signs<br>
be placed, signing for points in Washington and asked for our recommendations as to the<br>
names on these signs. The first sign would be the distance type of sign for desti-<br>
nations a considerable distance away. This would be placed somewhere north of the<br>
Junction of I-80 and would carry our recommended destinations of OLYMPIA and SEATTLE<br>
with the apppropriate mileage. The second sign would be just in advance of the Airport<br>
Interchange as one travels north and would carry the mileages to the next three inter-<br>
changes. These would be the AIRPORT INTERCHANGE, which would be in Oregon; LEWIS AND<br>
ARK HIGHWAY, and MILL PLAIN BLVD., with the appropriate mileages. These two signs<br>
re to be discussed with Mr. Still in Olympia and receive their approval, and after the<br>
proval had been obtained, we were to notify the Oregon Highway Department, Mr. George,<br>
in Salem.

The next sign that was discussed was the location of the sign bridge recommended by our Consultant and we felt that it was better to bring the overhead sign structure down off the top of the bridge and place it somewhere between Stations 70 and 80, or whatever would fit their design better. This sign bridge would carry the suggested designations, northbound 830, VANCOUVER-CAMAS EXIT ONE MILE. This would be over the outside lanes. Over the inside lanes, ENTERING WASHINGTON. For southbound traffic the same sign bridge would carry possibly the destinations to SALEM and EUGENE and the sign ENTERING OREGON. We felt that by placing it in the vicinity of Stations 70 and 80 we would be down off the critical elevation on the bridge and still about 1/2 mile north of the critical approach pattern of the aircraft to the Portland Airport. Bud George will check location in Salem.

Signing southbound into the State of Oregon was discussed and the Consultant's recommendation for interchange distance signing which would occur just before the Mill Plain Blvd. Interchange, would give SR 830 so many miles and I-80 north so many miles. Signs in the vicinity of the 830 Interchange, the Airport Interchange, Sandy Blvd. and I-80 North, with the appropriate mileages, would be placed. This, along with the signs on the sign bridge previously discussed, would indicate the destinations and distances in Oregon.

Also discussed at the meeting were the elevation of the bridge and the concerns of the Port of Portland regarding their aircraft approach and the Army Engineers regarding the height of the bridge for river traffic.

The next item which was discussed was the illumination of Interstate 205 as far as Oregon and Washington were concerned. Mr. George said that they felt that Oregon State Highway Department would illuminate, continuously, I-205 from the bridge across the Willamette River in the Oregon City vicinity to at least Sandy Blvd. Interchange, and probably then all the way through to the Airport Interchange, and with our illumination at the north end of the bridge at the interchange of SR 830, that we should light also the bridge across the Columbia River. If this illumination were carried to this extent we should also then light continuously between 830 Interchange and Mill Plain Interchange because of these interchanges falling within one mile distance within each other, and terminate the continuous illumination immediately north of the Mill Plain Interchange. They intend to light on the bridge to a level of .6 maintained, and they will increase this to .8 lumen maintained where our interchange begins for 830. All illumination on the bridge would be placed under the bridge contract and the lighting on the bridge would probably be mounted in the guard rail to cut down the hazard to approaching aircraft. We would go to overhead illumination from the end of the bridge on our side throughout the remainder of I-205.

[illegible] 470-734

JAN 11 1967

FOR FILING
2/14
EPF

# OREGON STATE HIGHWAY DEPARTMENT

INTER-DEPARTMENT CORRESPONDENCE

Salem, Oregon 97310
January 9, 1967

**SUBJECT:** Illumination & Signing
Interstate 205

To: Tom Edwards
Assistant State Highway
Engineer
BUILDING

Sp

Last Tuesday, the writer, Mr. A. E. Johnson, Mr. Bill Bulley, and Mr. Bill Kingman met in Mr. Johnson's office to discuss future illumination and signing on the I-205 Columbia River crossing structure. Mr. Kingman had requested this meeting in order to determine what Oregon's plans were with respect to lighting and signing in order that he might complete a review he was working on of the consultant's plans for Washington Highway Department's section of I-205.

The State of Washington is planning to illuminate the interchange at the north end of the structure as well as a lineal section to the north. Mr. Kingman and Mr. Bulley were told that since they were illuminating the section to the north and that in all probability I-205 would have lineal illumination to the south some form of lighting would be provided on the structure.

Their consultant had requested permission to design illumination for the State of Washington back to the beginning of the deceleration lane for the US830 interchange. They will deny him this request on the basis that Oregon is designing the structure, and this particular illumination will be located upon the structure proper.

On the Washington side facing southbound traffic, they will install ground-mount distance signs for whatever destinations we so choose. On the Oregon side at an appropriate location, they requested that we do the same for a distance destination sign bearing the legend "OLYMPIA" and "SEATTLE" with appropriate mileages. On the structure proper in the vicinity shown on the attached plan, they have requested that Oregon include as a part of the structure contract an overhead sign support bridging the entire deck. On this sign support facing northbound traffic would be their advance guide sign for the US830 interchange and an "ENTERING WASHINGTON" sign. Facing southbound traffic on this same sign bridge is

NOTED
TOM EDWARDS

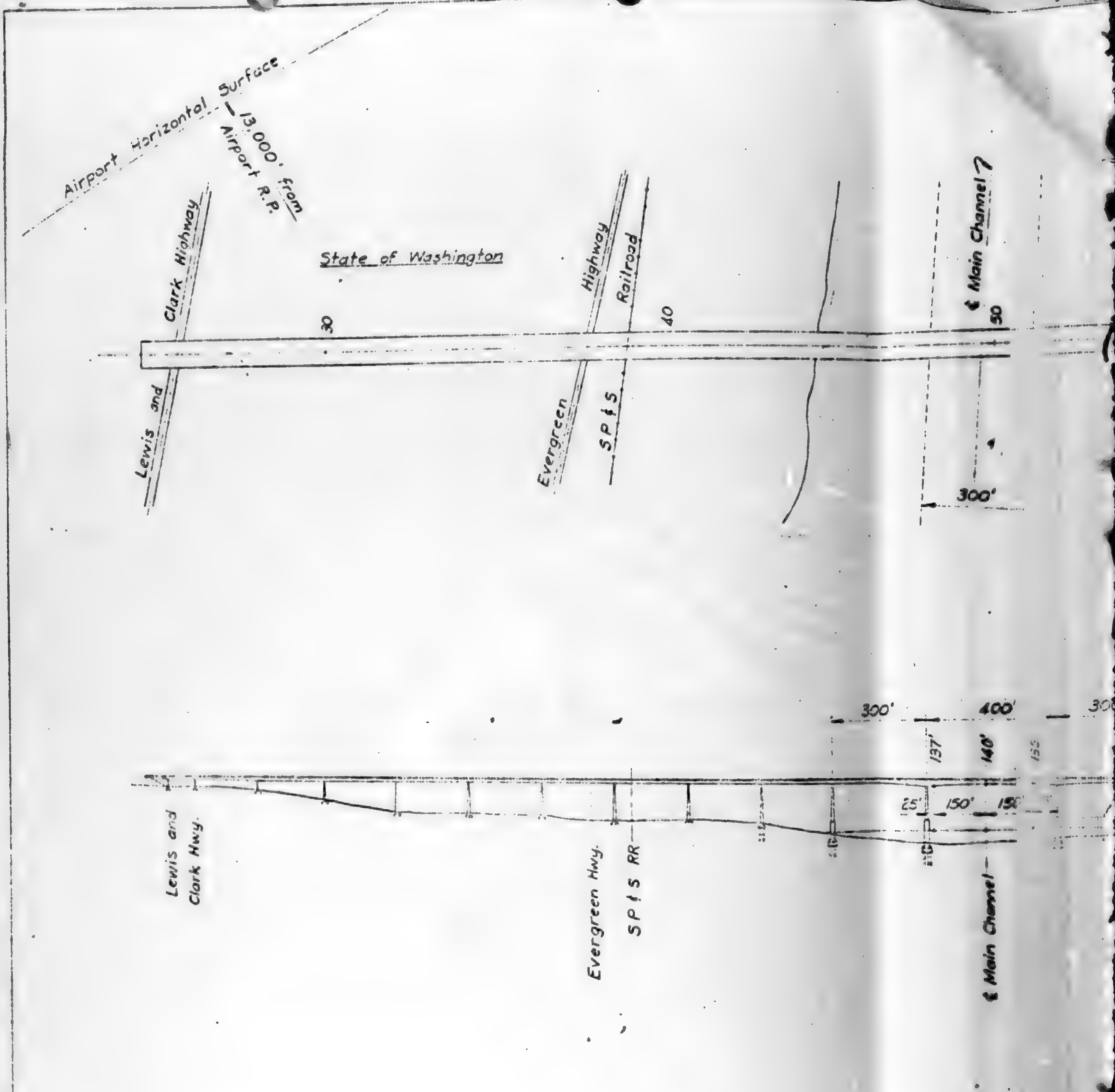
proposed an "ENTERING OREGON" sign. Enough space would be available to install an advance sign for the airport interchange. The location of the sign structure is critical because of clearance problems. However, it was the opinion of Mr. Johnson and Mr. Kingman that this location might best fit into the available clearance space.

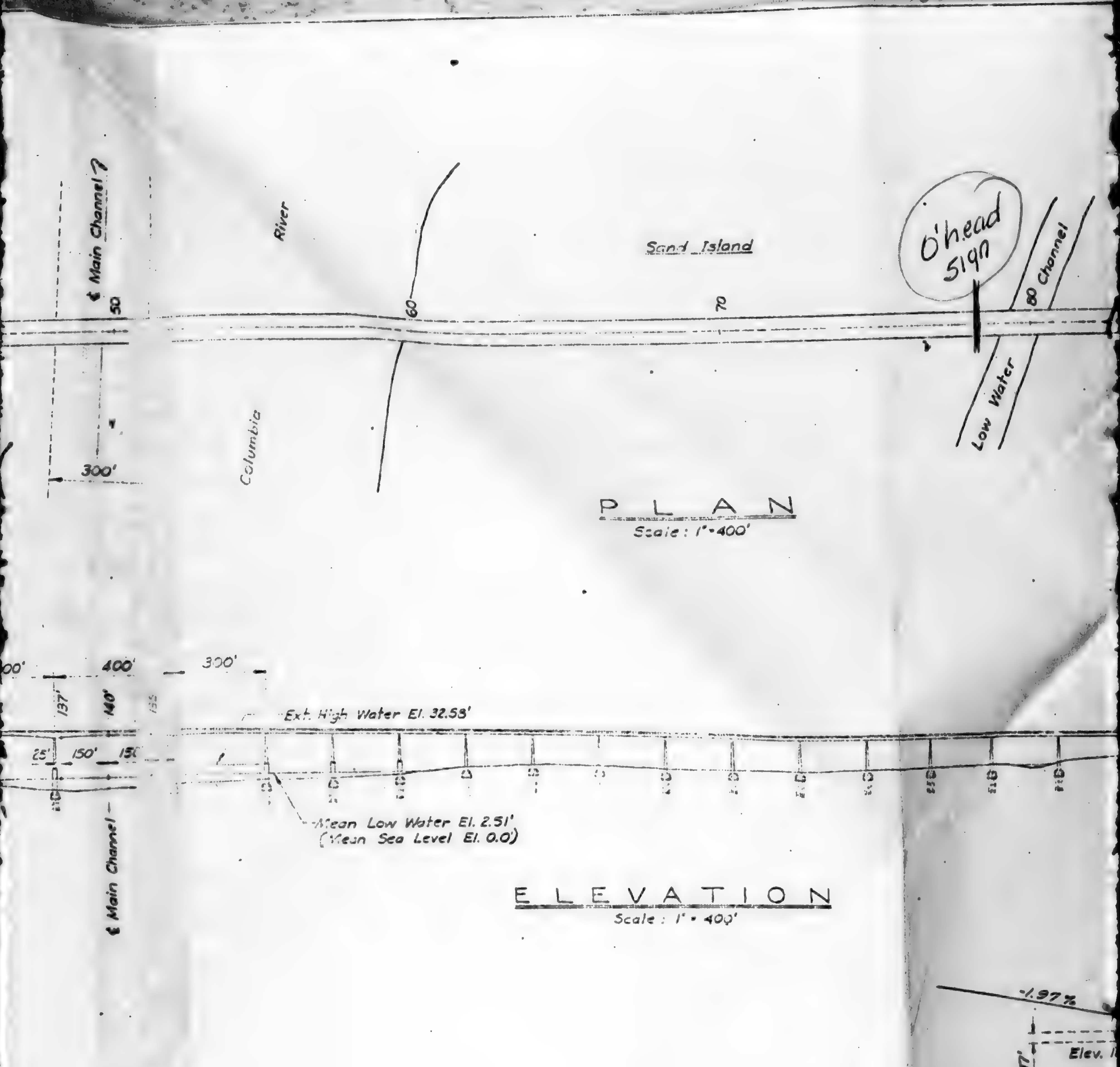
I am requesting Mr. Merchant through a copy of this letter to have someone determine if a sign structure can be placed at the location shown, and if so, Mr. Bulley has requested that we advise him whether or not Oregon is willing to install this sign support as a part of the bridge project. After it has been determined exactly where the sign support can be installed, I will prepare a draft for you on this matter.

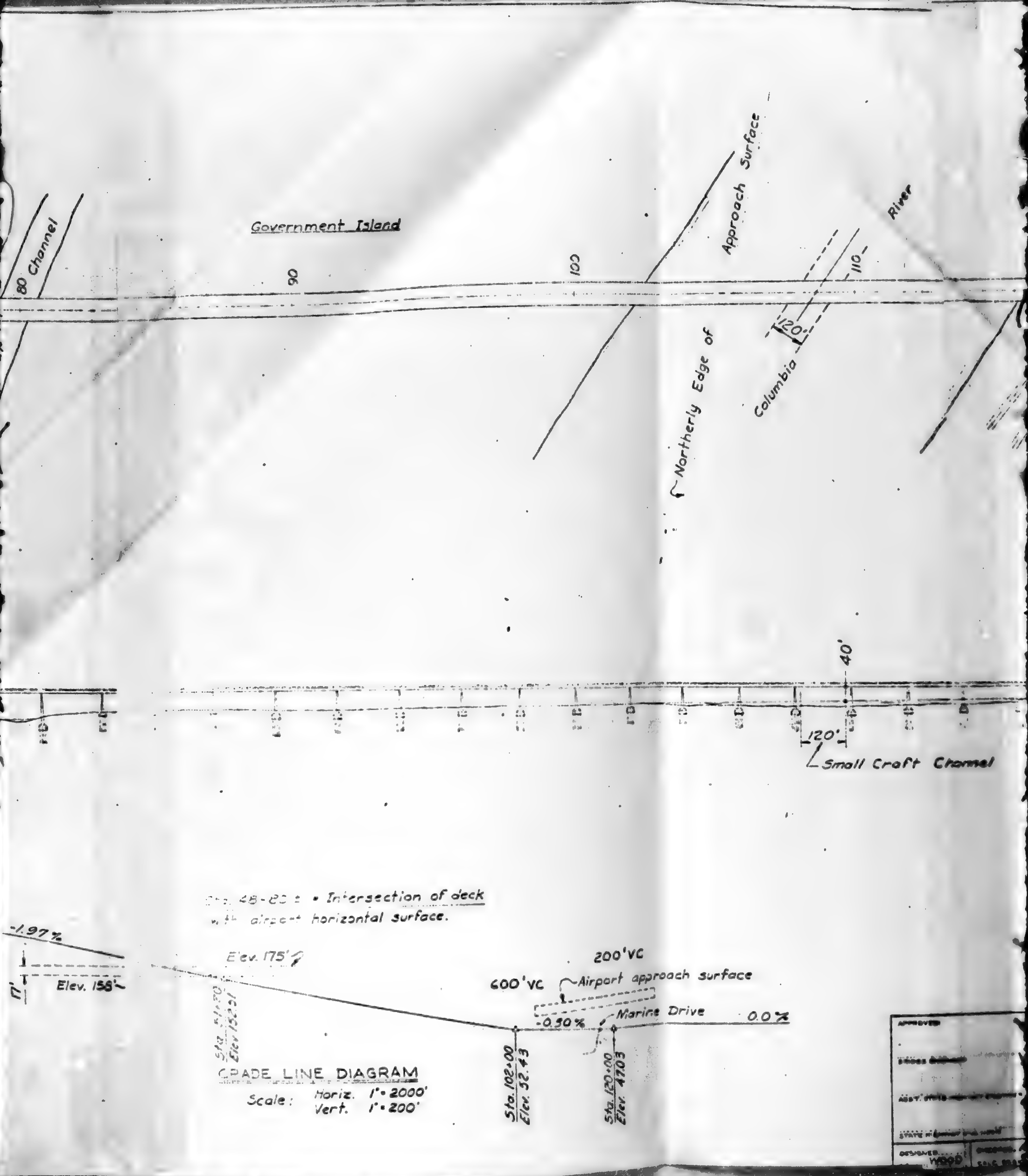
L. E. George
L. E. George
Assistant Traffic Engineer

LEG:mk
Attachment
cc: I. D. Merchant
A. E. Johnson

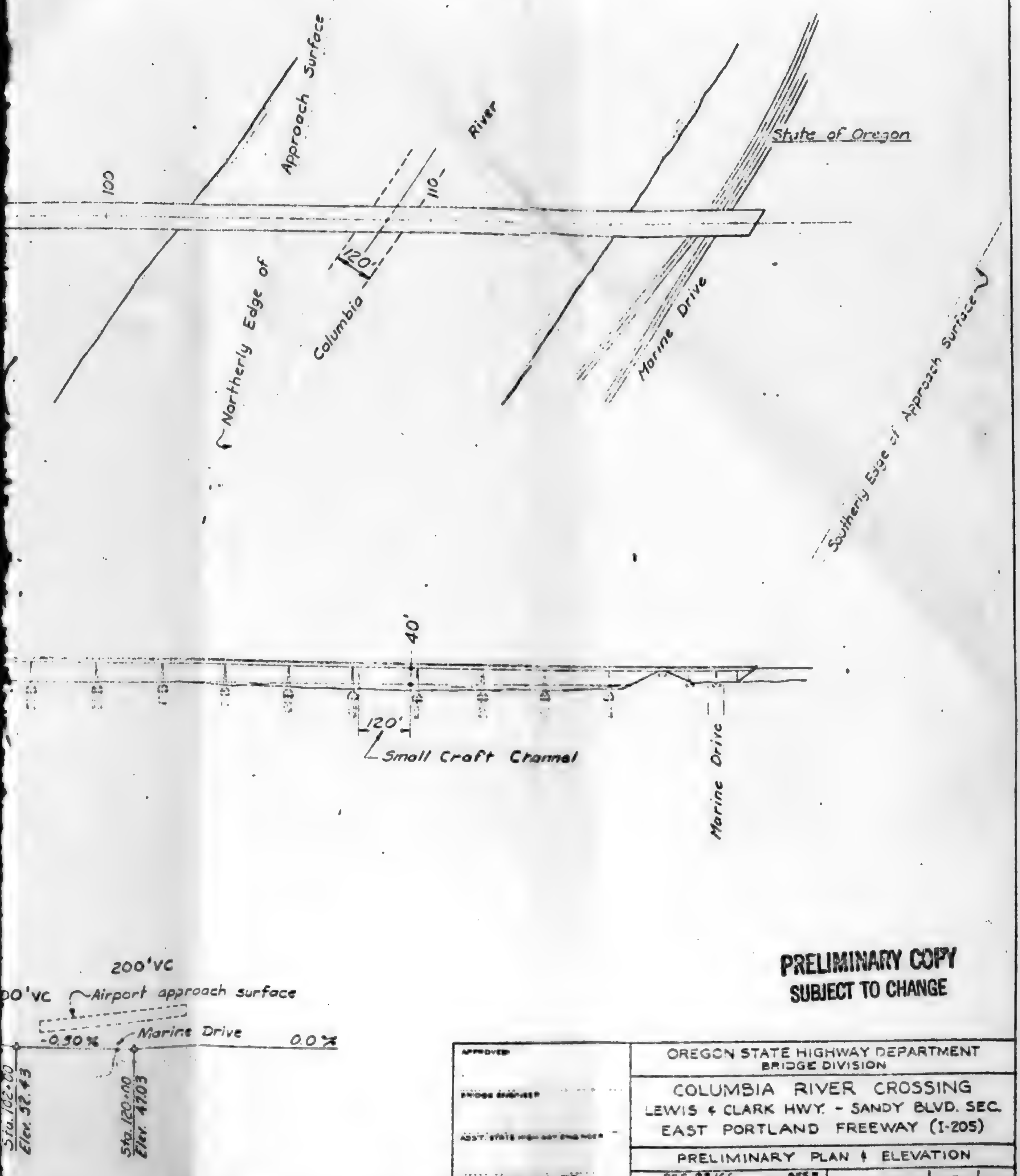
RECEIVED
JAN 10 1967
OFFICE OF
STATE HIGHWAY ENGINEER


Airport Horizontal Surface
13,000' from Airport R.P.
State of Washington
Lewis and Clark Highway
30
Evergreen Highway
SP & S Railroad
40
℄ Main Channel
50
300'
300'
400'
137'
140'
25'
150'
150'
Lewis and Clark Hwy.
Evergreen Hwy.
SP & S RR
℄ Main Channel


℄ Main Channel ?
River
Sand Island
O'head Sign
80 Channel
50
60
70
Low Water
300'
Columbia
PLAN
Scale: 1" = 400'
00'
400'
300'
137'
140'
Ext. High Water El. 32.58'
25'
150'
150
Mean Low Water El. 2.51'
(Mean Sea Level El. 0.0')
℄ Main Channel
ELEVATION
Scale: 1" = 400'
-1.97%
17'
Elev.



Government Island
80 Channel
90
100
110
Approach Surface
Northerly Edge of
River
Columbia
120'
40'
120'
Small Craft Channel
Sta. 48-80 ± • Intersection of deck
with airport horizontal surface.
-1.97%
17'
Elev. 158'
Elev. 175'
Sta. 51+70
Elev. 152.51
600'VC
200'VC
Airport approach surface
Marine Drive
-0.50%
0.0%
Sta. 102+00
Elev. 52.43
Sta. 120+00
Elev. 47.03
GRADE LINE DIAGRAM
Scale: Horiz. 1" = 2000'
Vert. 1" = 200'
DESIGNED WOOD


Northerly Edge of Approach Surface
100
110
120'
Columbia River
State of Oregon
Marine Drive
Southerly Edge of Approach Surface
40'
120'
Small Craft Channel
Marine Drive
200'VC
00'VC
Airport approach surface
-0.50%
Marine Drive
0.0%
Sta. 102+00
Elev. 52.43
Sta. 120+00
Elev. 47.03

PRELIMINARY COPY
SUBJECT TO CHANGE

| | |
|---|---|
| APPROVED | OREGON STATE HIGHWAY DEPARTMENT<br>BRIDGE DIVISION |
| BRIDGE ENGINEER | COLUMBIA RIVER CROSSING<br>LEWIS & CLARK HWY. - SANDY BLVD. SEC.<br>EAST PORTLAND FREEWAY (I-205) |
| ASST. STATE HIGHWAY ENGINEER | PRELIMINARY PLAN & ELEVATION |
| STATE HIGHWAY ENGINEER | DATE DEC. 23, '66 BRIDGE NO. 9555 — SHEET 1 OF 1 |
| DESIGNED WOOD — CHECKED — CALC. BY | ACCOMPANIED BY DWGS. — DRAWING NO. B-210 |

RECEIVED
DEC 22 1966
FOR FILING

8905

SP*23401-734

**OREGON STATE HIGHWAY DEPARTMENT**

INTER-DEPARTMENT CORRESPONDENCE

Salem, Oregon
December 21, 1966

SUBJECT:

To: MEMO TO FILE

On this date, a meeting was held in Portland at the Mallory Hotel. Attending the meeting were: Commissioners of the Port of Portland and staff members, George Baldwin and R. A. Neumeister; members of the Oregon State Highway Commission; Forrest Cooper, R. L. Porter, and F. B. Klaboe.

The subject was the location of the Columbia River Bridge on I-205.

The Port of Portland's staff requested that the bridge be shifted some unstated distance easterly to provide additional clearance for a glide path for the northeast airport runway.

It was decided by the group that the matter be settled by conference between the Port of Portland and the Highway Commission rather than by public hearings as previously suggested by members of the Port staff.

Possible changes to provide additional clearance will be studied by the Highway Department after which a conference will be arranged with the Port.

Forrest Cooper
Forrest Cooper
State Highway Engineer

FC:fn

cc R. L. Porter
F. B. Klaboe
Victor D. Wolfe
L. W. Rulien
A. E. Johnson

8905

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DEC 12 1966
FOR FILING

FORM E-30 50M 10-65 SP*23401-734

## OREGON STATE HIGHWAY DEPARTMENT

INTER-DEPARTMENT CORRESPONDENCE

Salem, Oregon 97310
December 12, 1966

SUBJECT:

To: Memo to the Files

The Federal Aviation Agency called a meeting at the Portland International Airport on December 8 to discuss the State's application for a permit to construct the Columbia River crossing on I-205. This meeting was attended by some 30 to 40 people representing the following organizations: Federal Aviation Agency; Port of Portland; Air Transport Command; Air National Guard; Bureau of Public Roads; Washington State Department of Highways and the Oregon State Highway Department.

The meeting was presided over by Mr. Fred McKnight of the FAA's Seattle office. He opened by stating that the meeting was informal and being held so that the FAA could be advised of all the objections to the State's proposal. Members of the State Highway Department explained our plan using suitable maps and profiles. After our presentation, Mr. R. A. Neumeister, Assistant Manager of the Port of Portland, made a presentation. It was generally a plea to the FAA to require the State to provide more clearance than that required by regulations. He stated that no one could predict what the airport's needs would be in 15 to 20 years' time but that it would grow to twice its size by then and that drastic changes in airport construction and design may be forthcoming. After Mr. Neumeister's discussion, the meeting was generally thrown open for comments and questions.

The FAA was queried on the possible effect of the structure as far as the electronic equipment and lighting facilities are concerned. It was their considered opinion that the structure would in no way affect the approach lighting and that the chance of affecting the electronic equipment used for instrument landings would be extremely minimal, if any.

It was also stated that portions of the electronic equipment could be changed at small cost if any interference with the structure resulted. The FAA also advised those present that our plan meets all obstruction requirements necessary and further explained that the requirements set up by the FAA and used throughout the United States have liberal latitude for pilot error. In other words, there is a safety factor in these requirements which makes it as safe as can be justified.

The members of the Air Transport Command and the Air National Guard commented that they felt the structure should be moved to give a greater safety factor and to allow for future development that might occur in the airport industry. However, all those who opposed the move agreed that we had met minimum standards and also that the aircraft being designed now for future use are being designed for use on existing runways.

It was also brought out by the FAA that any extension of runway 28R would have to take place in a westerly direction rather than toward the east because of topographic barriers.

A discussion concerning the reduction of the 3-degree approach slope now being used to 2½ degrees resulted in a comment from the FAA that they thought such a change would be highly unlikely due to the existing topography in the approach areas. Even so, our proposed structure and roadway would still be sufficiently clear from an obstruction standpoint.

Toward the end of the meeting, a proposal was presented to lower the grade on the State's proposed alignment where it crosses Marine Drive. The State Highway Department advised that it was possible to lower the grade at this point up to a maximum of 23 feet if this would serve any useful purpose. The consensus seemed to be that some minor improvement would be forthcoming from such a maneuver but that it would still not satisfy the objection of the Port who would still like us to move easterly about 1,500 feet.

The State agreed to study this matter and be prepared to alter our proposal if any justification can be found for such a change.

Mr. Porter of the State Highway Department advised that the State was not being arbitrary in this matter and that we had no intention of constructing any facility which would in any way damage the operating characteristics of the Port. However, we had in good faith designed our facility to meet the existing criteria and, lacking any proof that this would damage the Port, do not feel that we could change our line as requested for a cost to the taxpayers of over $2 million in construction and additional road-user costs.

Mr. French of the Bureau of Public Roads advised that the Bureau's stand would have to be that the minimum criteria govern and that any deviation from this criteria which costs a substantial amount of money would not receive Bureau of Public Roads' participation. He reminded the audience that highways all over the United States are being designed using this criteria and, if we were required to provide more clearance than stipulated by the existing criteria in this instance, every other airport in the United States would be requesting the same treatment at a greatly increased expense.

Mr. McKnight advised that he also is required to act on the minimum criteria standards and that it was the FAA's opinion that these had been met. He did give those present 10 more days to submit additional briefs and stated that he would take no action until these briefs, if any, were scrutinized.

Mr. Neumeister stated that he would require the FAA to guarantee the Port that no harm would come from our proposal and if they could not make such a guarantee, he would continue the battle against it through every means available to him.

F B Klaboe
F. B. Klaboe
Assistant State Highway Engineer

FBK:srb

cc: Forrest Cooper
R. L. Porter
Tom Edwards
G. E. Rohde
F. D. Morgan
Ivan Merchant
A. E. Johnson

8905

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DEC 23 1966
FOR FILING

NOTED
R. L. PORTER

December 9, 1966

Porter

Mr. Fred McKnight
Chief, Air Traffic Branch
Federal Aviation Agency
Western Region
Room 121, FAA Building
Boeing Field
Seattle, Washington 98108

Dear Mr. McKnight:

Subject: I-205 Columbia River Bridge Location

At the conclusion of your meeting held at the Portland International Airport on December 8, 1966 to discuss the Oregon State Highway Department's proposed I-205 Columbia River bridge location, you stated that the Federal Aviation Agency determination would not be finalized until December 18, 1966, to allow time for submittal of additional information and comments.

If for any reason the Federal Aviation Agency determination is that the proposed construction is not a hazard to air navigation, the Port hereby requests that a public hearing be held prior to publication of such an acknowledgment. The Port makes this request based on the fact that many parties interested in this matter were not included in your aforementioned meeting held on December 8, 1966, such as the County of Multnomah, City of Portland, and the press.

Thank you for your continued cooperation in this matter, and if we can be of assistance by furnishing additional information, we will be happy to do so.

Very truly yours,

THE PORT OF PORTLAND

K. A. [illegible]
for GEORGE M. BALDWIN
General Manager

12-14-66
cc Edwards, Merchant,
Morgan, Johnson
Bailey, BPR

NOTED
F. B. KLABOE

cc: Mr. Forrest Cooper, OSHD
Multnomah County Commission
Mayor, City of Portland

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DEC 12 1966
OFFICE OF
STATE HIGHWAY ENGINEER

From end of runway to
Middle Marker – 3,725'

Middle Marker to ℄ 195.6'

Runway To ℄ → 3920.6'

(Scales 3875 ±
end of Runway must be approx 50' west of mapping

8905

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DEC 23 1966

Klaboe

Commissioners
HOWARD B. SOMERS
*President*
HAROLD S. HIRSCH
*Vice-President*
ERLING E. JACOBSEN
*Secretary*
LEE E. CALDWELL
*Treasurer*
DONALD G. DRAKE
RAYMOND M. KELL
DENNIS J. LINDSAY
LEW S. RUSSELL
ROBERT B. WILSON

*General Manager*
GEORGE M. BALDWIN

*Ass't General Manager*
R. A. NEUMEISTER
*Mgr., Aviation Dept.*
J. V. FRYBERGER
*Mgr., Industrial Development Dept.*
L. E. ARNOLD, JR.
*Mgr., Marine Dept.*
A. J. HEINEMAN
*Comptroller*
E. W. BAUER
*Mgr., Research and Planning Dept.*
W. S. DIRKER
*Chief Engineer*
R. F. DOW
*Mgr., Public Affairs Dept.*
W. G. PROCTOR

THE PORT OF PORTLAND

Swan Island, P.O. Box 3529, Portland, Oregon 97208

Telephone 503-285-5271

In reply refer to:
Eng-ERA

November 11, 1966

sent 11-15-66

REFERRED TO
Edwards - BPR - ~~Marhoff~~ - Morgan
By Asst. State Hwy. Engr.
Johnson, ~~Bully~~ (Wn State)

NOTED
F. B. KLABOE

Mr. Fred McKnight
Chief, Air Traffic Branch
Federal Aviation Agency Building
Boeing Field
Seattle, Washington 98108

Dear Mr. McKnight:

SUBJECT: I-205 Columbia River Bridge Location

Porter

This is to acknowledge your letter request dated 10-3-66 for comments on the subject bridge as it affects Portland International Airport and to state the Port's opposition to the structure as proposed by the Oregon State Highway Department.

The Port has officially requested OSHD to revise the alignment and location of the bridge with respect to airport facilities. Enclosed herewith are copies of the following subject correspondence.

1. Interoffice memo dated 9-12-66
2. Port letter to OSHD dated 9-20-66
3. OSHD letter to the Port dated 10-19-66
4. Port letter to OSHD dated 10-21-66

As is indicated by the OSHD letter, that agency intends taking no action until review of the matter by FAA. The Port therefore urgently recommends and hereby requests that approval of the bridge structure be withheld subject to realignment per the Port's request and subject further to FAA review of the revised location. Both this request and that to the OSHD are felt to be clearly justified as follows:

1. The Port acknowledges and concurs in the need for I-205 and the proposed interstate bridge. It must be kept in mind however, that the proposed freeway is intended to serve the areas through which it passes, not subjugate and damage them. The fact that PIA is the largest existing transportation facility between Seattle and

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STATE HIGHWAY ENGINEER

San Francisco, and the fact that the freeway and bridge are still in the design stage lead to only one conclusion -- we must fit the freeway and bridge into the pattern of existing facilities.

2. In connection with the bridge, and irrespective of other conditions, the Columbia River is a navigable waterway and the vertical clearance requirements for maritime traffic must be satisfied.

3. The 10-3-66 FAA letter refers only to those characteristics of the bridge which violate Para. 77.25 (a)(4), Horizontal Surface 150' Above the Airport Elevation, of Part 77, Federal Aviation Agency Regulations. The Port has concern for all criteria of Part 77, and feels that wherever possible it must be respected. It is felt that by making minor changes in the proposed bridge profile, the violation referred to in the FAA letter can be eliminated. Considering the existing topographic features north of the Columbia River in this vicinity however, and the fact that this encroachment is wellaway from the runway approaches, the Port would concur in a waiver by FAA of this violation. Beyond that condition referred to above, however, the Port is more specifically concerned over the proximity of the proposed bridge to the instrument approach zone of Runway 28R. It is our understanding that as submitted by the OSHD, the bridge with a 17' high vehicle would just reach the 50:1 slope of the approach zone.

4. The OSHD contends that it has satisfied the maritime requirements and is in substantial conformance with existing criteria for airport clearance standards and that there is no justifiable reason known for relocating the proposed structure.

5. Runways and runway approaches are the backbone of all airports and must be protected to the maximum extent physically possible and economically feasible. Although the Port recognizes the general conformance of the proposed bridge with existing criteria, we submit that this criteria should be considered as the absolute minimum and must be treated as such in all matters pertaining to these airport facilities. Current criteria fit existing aircraft and although future aircraft are intended to conform with present-day standards, we are in no way assured this will be the actual condition. FAA does not forecast future requirements, nor would FAA be in a position to enforce future needs as projected by others. The Port, as airport owner and operator, must therefore assume the responsibility of providing for the future. We must, by our best judgement and our most practical aviation-oriented consideration, protect those facilities which would be impaired by changing standards and operational requirements.

Under the conditions which would exist if the bridge is constructed as proposed by OSHD, an aircraft on a normal 3-degree instrument approach glide slope would pass approximately 175' above a vehicle on the bridge. This is little more than the length of current aircraft and only slightly more than half the length of SST aircraft, expected to be operating from PIA in less than ten years. Even if the bridge is relocated the minimum distance of 1500' as requested by the Port, the clear distance between plane and vehicle would be only about 255' -- still less than the 300' SST length. Further, the 3-degree glide slope is greater than desirable. If possible, this slope would be reduced to at least 2.5-degrees currently, and probably more in the foreseeable future.

The Port requested that the bridge site be shifted a minimum of 1500' easterly and also that the Oregon approach be lowered the maximum feasible amount in the area of Runway 28R approach zone. The relocation would situate the bridge in the general location approved by the Bureau of Public Roads in its acceptance of the I-205 corridor. Lowering of the southerly portion of the structure can be accomplished by rerouting existing Marine Drive along the foot of the levee and lowering the bridge structure to the top of the dike, Multnomah County has indicated approval of the rerouting of Marine Drive. These requested revisions in the plan would substantially place the bridge structure below a 100:1 slope, referred to in Part 77 as a guidance criteria, and would lower by nearly half the height of the earth fill which in effect is a virtual solid wall across the Runway 28R approach zone. Even under these conditions, the bridge will, as stated above, be considered undesirable from the stand point of aviation safety and especially commercial aviation operations. We realize however, that there are practical limits in this matter, as there are in all engineering considerations, and we have arrived at what we feel is an acceptable compromise. With the bridge at the easterly location, the airport will be protected to a more satisfactory extent while, at the same time, the marine interests can be provided for by the use of acceptable bridge approach grades.

A comparison of cost differential of value received would be as impossible in this instance as proving the bridge at one location to be more hazardous than at another. It is the Port's responsibility to make every effort to protect these critical facilities from encroachment by potentially hazardous structures and it is our considered opinion that the bridge, as proposed by the State, falls well within this category.

Your favorable consideration of our recommendation and request is vital to the Port in its grant agreement commitments to FAA to protect the many facilities involving federal funds, and to the Port's moral obligation to the air traveling public to provide the safest facilities possible.

If we can be of assistance by furnishing additional information relative to this matter, we will be happy to do so.

Very truly yours,

THE PORT OF PORTLAND

K. A. Neumeister
for GEORGE M. BALDWIN
General Manager

cc Mr. Forrest Cooper, OSHD
Mr. P. C. Northrop, Multnomah County

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NOV 14 1966
OREGON
STATE HIGHWAY COMMISSION

J P

8905

FORM E-123X 90M 7-65

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DEC 23 1966

COMMISSIONERS
GLENN L. JACKSON, CHAIRMAN
MEDFORD
KENNETH N. FRIDLEY, MEMBER
WASCO
DAVID B. SIMPSON, MEMBER
PORTLAND

STATE OF OREGON
STATE HIGHWAY DEPARTMENT
SALEM 97310

Porter

October 26, 1966

Subj: Columbia River Bridge
East Portland Freeway (I-205)
Multnomah County

Mr. Robert W. Dunn
Director
Oregon State Board of Aeronautics
3040 - 25th Street S. E.
Salem, Oregon 97310

ED
TER

NOTED
F. B. KLABOE

Dear Sir:

Enclosed are six copies of a sketch map of our proposed routing of Interstate 205 in the vicinity of the Portland International Airport. Large scale maps, profile and bridge layout have previously been supplied to the FAA along with Form FAA-117.

We have now been reminded that this should have been forwarded first to your department for your approval and then to the Bureau of Public Roads for their approval and then submittal to the FAA. Belatedly we request your approval on these sketch maps and forwarding to the local office of the Bureau of Public Roads. If more specific data is desired please call me.

Very truly yours,

Forrest Cooper
State Highway Engineer

By A D Olson
A.D. Olson
Urban Engineer

Enclo.
ADO:jr

cc: F.B. Klaboe
Ted Dec, BPR

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OCT 27 1966
STA

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FORM 2-123X 80M 7-65

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SEP [illegible] 1966

COMMISSIONERS
GLENN L. JACKSON, CHAIRMAN
MEDFORD
KENNETH N. FRIDLEY, MEMBER
WASCO
DAVID B. SIMPSON, MEMBER
PORTLAND

STATE OF OREGON
STATE HIGHWAY DEPARTMENT
SALEM 97310

Porter

September 16, 1966

Federal Aviation Agency
7300 Perimeter Road
Boeing Field
Seattle 8, Washington

NOTED
R. L. PORTER

Attention: Chief, Air Traffic Division

Gentlemen:

Enclosed are two copies of the "Notice of Proposed Construction or Alteration" for the Interstate 205 Bridge over the Columbia River. This lies a short distance east of the Portland International Airport.

We are in the initial design stage on this facility and, until recently, believed that we could build within the regulations set up under Part 77, "Objects Affecting Navigable Airspace", but found that we were using an obsolete Airport Reference Point.

The revised reference point puts the 13,000-foot radius horizontal surface in such a position that it is impossible to build anything on the Washington side of the river which would not conflict with the control surface since the existing Highway 830 (Lewis and Clark Highway) is within this area and above the control elevation. Considering the position of our conflict, relative to the airport and to the existing ground surfaces, we hope that this will not be found objectionable.

As exhibits we enclose a 1"-2000-foot scale map of the surrounding area, a 1"-200-foot map of the approximate location, and a 1"-200-foot horizontal scale and 1"-20-foot vertical scale profile of the proposed line. Also enclosed is a set of preliminary bridge layout plans. Please note that the profile indicates possible lines both over and under the Lewis and Clark Highway in Washington. Since laying this out we have been advised that going under that highway appears unfeasible due to ground water problems among other things. The bridge plans were therefore laid out on the higher grade line.

Your early consideration and comments on the acceptability of this plan will be appreciated. If you have any questions please contact me.

Very truly yours,

Forrest Cooper
State Highway Engineer

By Adrian D. Olson
A.D. Olson
Urban Engineer

Attachments
ADO:jr

cc: F.B. Klaboe ✓

[illegible] 1 [illegible]
STATE HIGHWAY ENGINEER

8905

RECEIVED
AUG 30 1966
FOR FILING

August 29, 1966

Mr. Warren M. Lemmon, Vice President
Roth Properties
213 Market Street
San Francisco 5, California

Dear Mr. Lemmon:

This is in response to your August 23 inquiry relating to a crossing of the Columbia River east of Portland.

Interstate Route 205 will cross the Columbia River near the westerly end of Government Island, which is approximately 105th Avenue. The location has not as yet been precisely fixed but it will be in this general neighborhood. The exact location can be determined only after detailed surveys by both the Washington and Oregon Highway Departments. These surveys are now under way; however, the time of construction is not known as yet but it probably will not be before 1968.

Very truly yours,

Forrest Cooper
State Highway Engineer

By

R. L. Porter
Deputy State Highway Engineer

RLP:ms

cc Forrest Cooper
F. B. Klaboe
Victor D. Wolfe

ROTH PROPERTIES
215 MARKET STREET
SAN FRANCISCO 5, CALIFORNIA
YUkon 6-6692

August 23, 1966

REFERRED TO
admin
BY SECRETARY

NOTED
PORTER

State Highway Department
Salem, Oregon

Gentlemen:

We represent the owners, Mr. and Mrs. James F. Coonan and Mrs. William M. Roth, of a 193 acre parcel of land lying adjacent to the south side of the Columbia River on the east side of Portland at approximately 181st Street.

[illegible]

We understand that a decision has been made on the location of a new bridge across the Columbia River somewhere between our property and the Portland airport. We would very much appreciate your advising us as to where the bridge will be located and your estimate of the timing of commencement and completion of construction of the bridge. If you have a map available showing the location we would also appreciate receiving such a map.

Sincerely yours,

W. M. Lemmon

Warren M. Lemmon
Vice President

WML'T

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AUG 25 1966
OFFICE OF
STATE HIGHWAY ENGINEER

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AUG 25 1966
OREGON
STATE HIGHWAY COMMISSION

8905

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JUN 23 1966
FOR FILING

Const
RH
EPF

Salem, Oregon 97310
June 23, 1966

I-205

Mr. F. D. Morgan
Construction Engineer
BUILDING

In order that you may proceed with the location and right-of-way work on this facility, I list below sections that we feel should receive priority for earliest lettings.

I do not want this listing to fall into anyone's hands but those involved with doing the work. I would also like to emphasize that it is subject to change and revision if it becomes impractical to follow:

Priority 1: The Oregon City-West Linn Bridge Section

Priority 2: Banfield Freeway to Columbia River Section

Priority 3: Columbia River Bridge

Priority 4: Baldock Freeway to West Linn Section

The remaining units between Oregon City and the Banfield Freeway should follow as rapidly as possible.

F. B. Klaboe
Assistant State Highway Engineer

FBK:srb

8715

APR 21 1966

FORM 7-65

COMMISSIONERS
GLENN L. JACKSON, CHAIRMAN
MEDFORD
KENNETH N. FRIDLEY, MEMBER
WASCO
DAVID B. SIMPSON, MEMBER
PORTLAND

STATE OF OREGON
STATE HIGHWAY DEPARTMENT
SALEM 97310

April 19, 1966

Washington State Highway Commission
Department of Highways
4200 Main Street
Vancouver, Washington

Attention: Mr. T.G. Gray, P.E.
District Location Engr.

Gentlemen:

Re: Columbia River Crossing - Interstate 205
Your Ref: PSH 1 (FAI-205) L-2096
Columbia River to Jct. PSH 1

Reference is made to your letter of April 4 forwarding sketch map and profile of control points for the proposed river crossing.

In order to piece together a map on which to make a cross-river projection, we would appreciate a copy of any larger scale mapping which you might have that would indicate coordinate grids (for tieing into our mapping) and the approximate position of your control corridor. As soon as such a map can be put together, a meeting to discuss the specifics could then be scheduled and the details worked out together.

If no map is yet available, please advise us and we will work out something suitable for discussion purposes.

Very truly yours,

Forrest Cooper
State Highway Engineer

By D. J. Barbee

D.J. Barbee
Assistant Construction Engineer

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APR 20 1966
OFFICE OF
STATE HIGHWAY ENGINEER

F.B. KLABOE
NOTED

NOTED
VICTOR D. WOLFE

ADO:jp

cc: Vic Wolfe
F.B. Klaboe
A.E. Johnson

STATE OF WASHINGTON
DANIEL J. EVANS, GOVERNOR

WASHINGTON
STATE HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS
OFFICE OF DISTRICT ENGINEER
4200 MAIN STREET
VANCOUVER, WASHINGTON

Routing
Decker
Bond
Barbee
Walker
Scott

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APR 5 1966
CONSTRUCTION
DIVISION

April 4, 1966

Mr. F. B. Klaboe
Assistant State Highway Engineer
Oregon Highway Department
Salem, Oregon 97310

PSH 1 (FAI-205) L-2096
Columbia River to Jct. PSH 1

Dear Mr. Klaboe:

As requested by Mr. W. E. McKibben and mentioned in his letter to you dated March 24, 1966, we are transmitting herewith one (1) print each of a map and profile which indicate control points in regard to the FAI 205 alignment within Washington.

On the map we have indicated at the Washington-Oregon boundary a rather narrow corridor within which we prefer to have the 205 route hit. This is necessary in an attempt to avoid some rather expensive developments on each side of the proposed route.

On the profile we have indicated several alternates including both over and under PSH #8 (SR 830). As noted on the profile, the grade line in relation to PSH #8 will be primarily determined by the hydrogeological survey to be made in this area. You will note that regardless of the channel clearance required either profile can be incorporated into our plans. It is our understanding that your department will contact the U.S. Army Corps of Engineers in regard to the navigation clearance which will be required at the Columbia River channel.

We will be happy to meet with you or Mr. Barbee at a mutually agreeable time to discuss the coordination of this project.

Very truly yours,

E. G. NETTLETON, P.E.
Acting District Engineer

T. G. Gray

By: T. G. GRAY, P.E.
District
Location Engineer

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OFFI
STATE

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APR 5 - 1966
OREGON
STATE HIGHWAY COMMISSION

EGN:am
TGG
Enc.
c.c. - Mr. C. G. Prahl

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High level Alternat
Alternate Gr
Gr
OREGON
WASHINGTON
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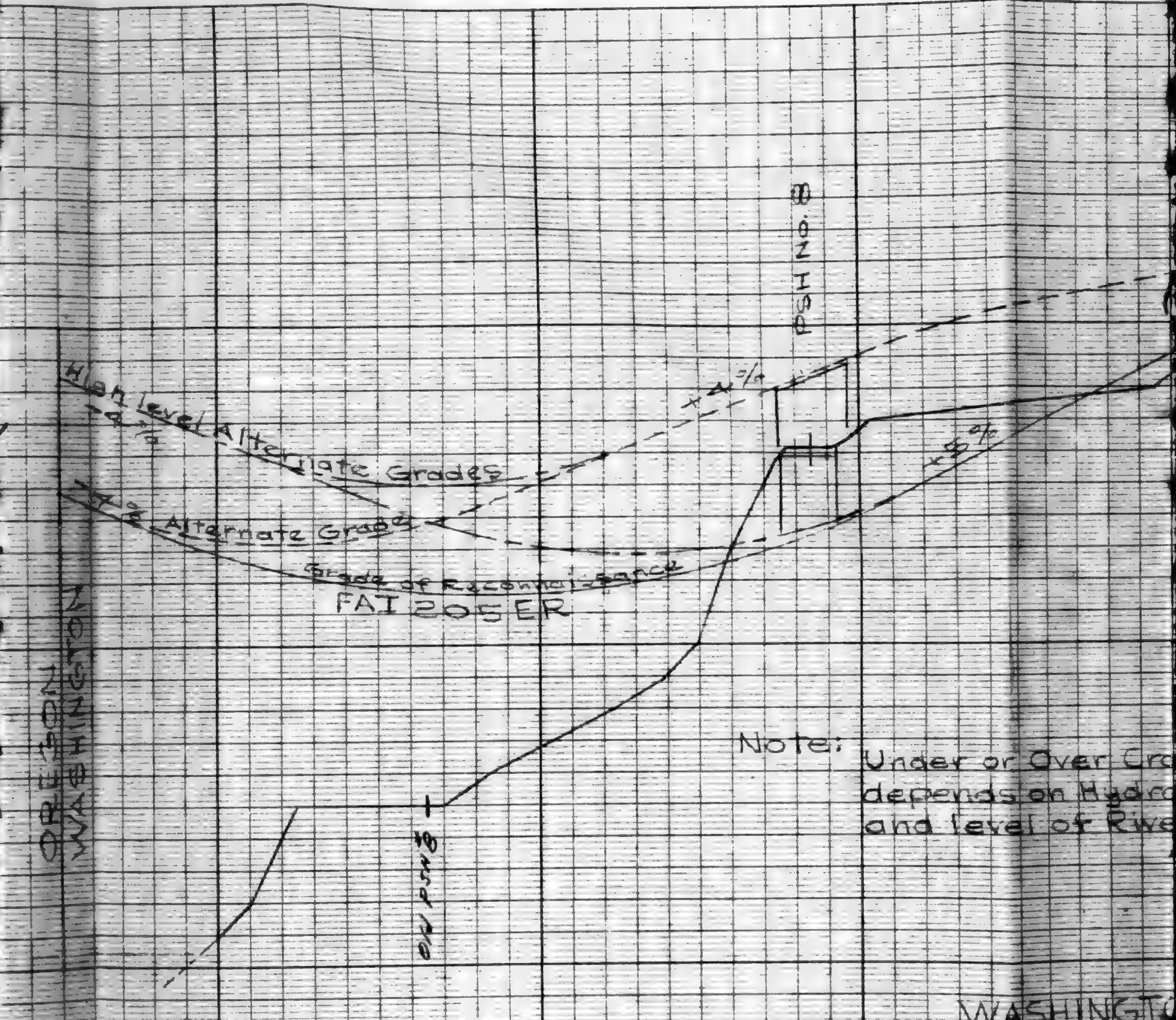

OREGON
WASHINGTON
High level Alternate Grades
-2%
-4%
Alternate Grades
Grade of Reconnaissance
FAI 205ER
+4%
+5%
PSH No. 8
Old PSH No. 8
Note: Under or Over Cro
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and level of Rive
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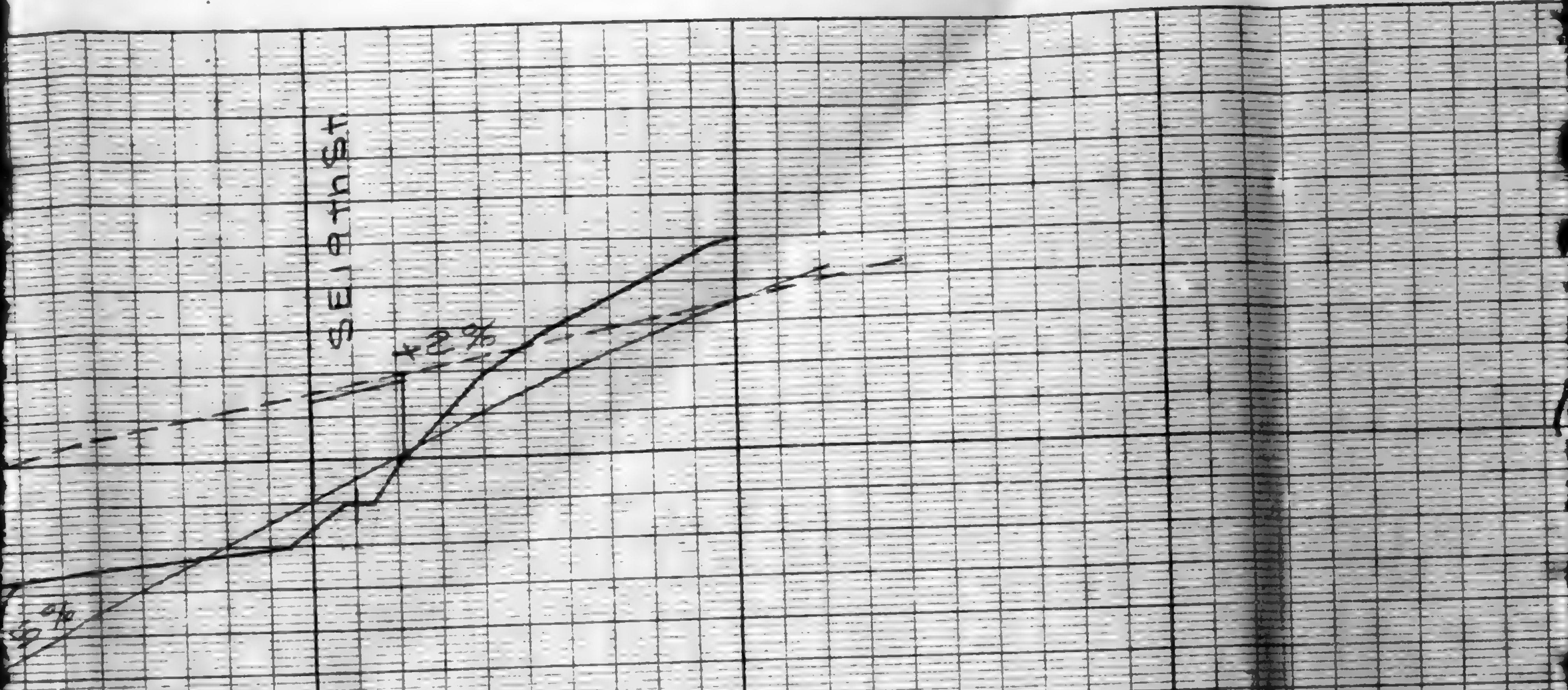

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WASHINGTON STATE DEPT.
OF HIGHWAYS
DISTRICT 4. VANCOUVER

E.G. Nettleton T.G. Gray
Acting Dist Engr. Location Engr.
J.W. Harris Proj. Engr.

March 29, 1966

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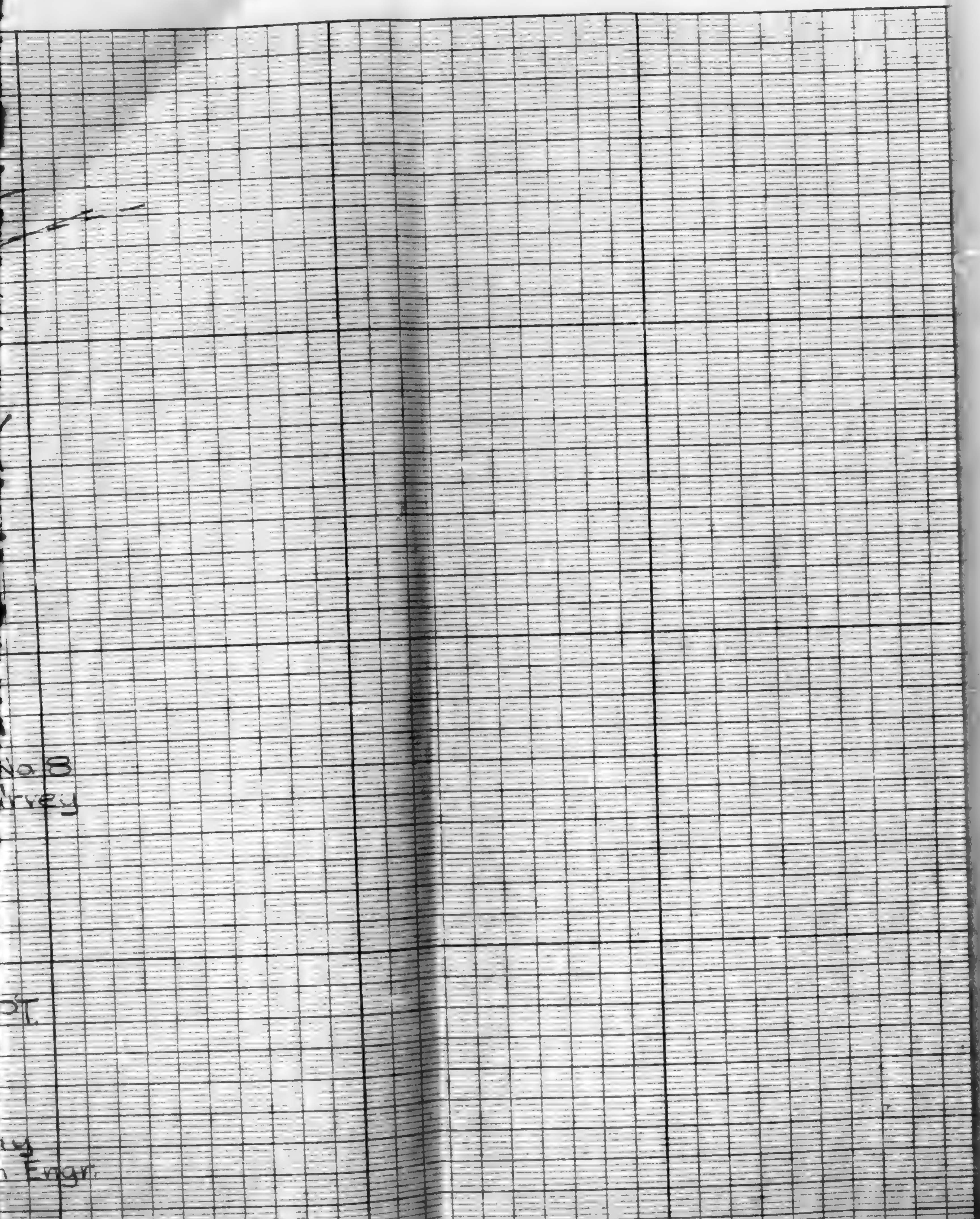

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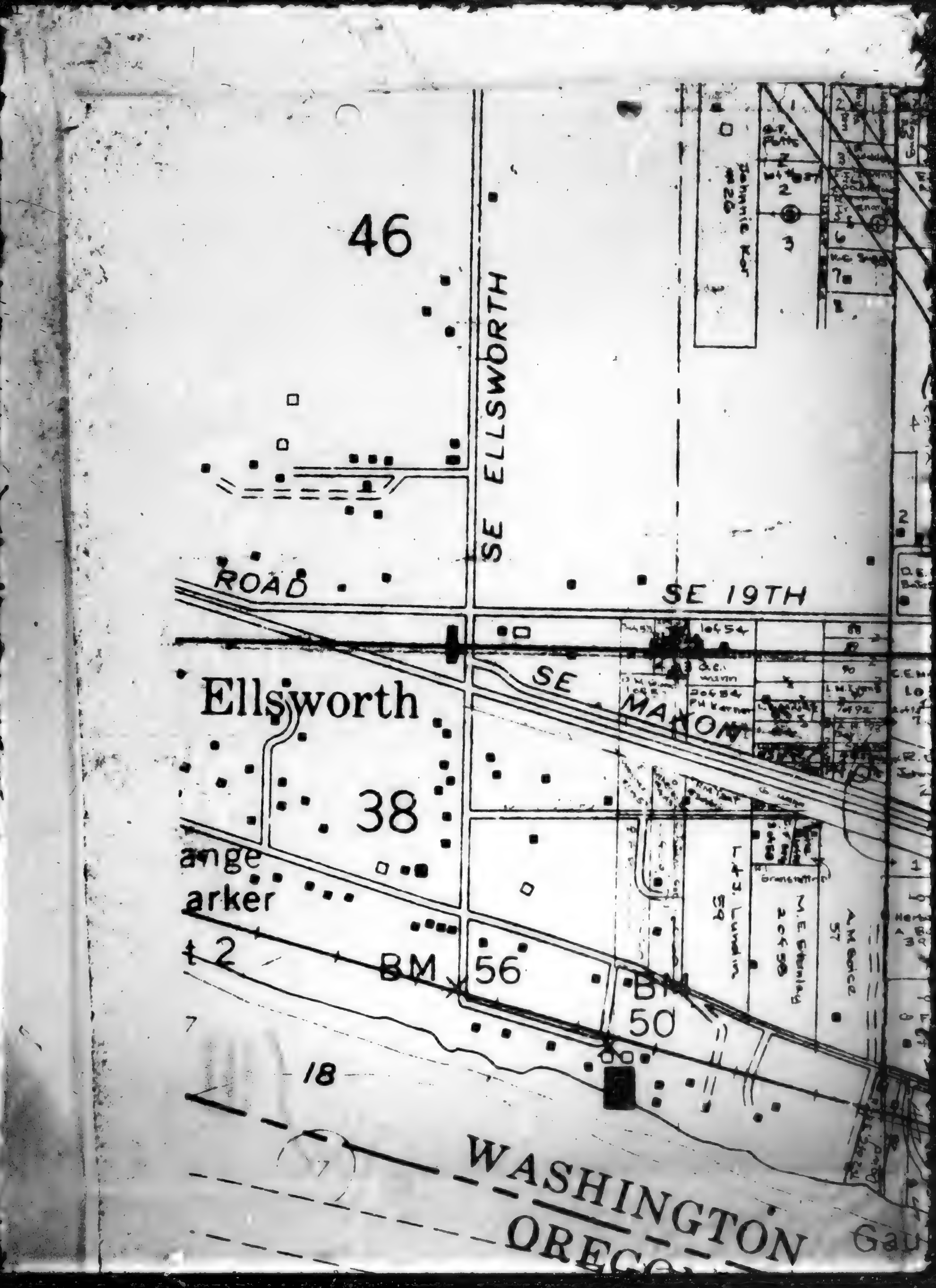
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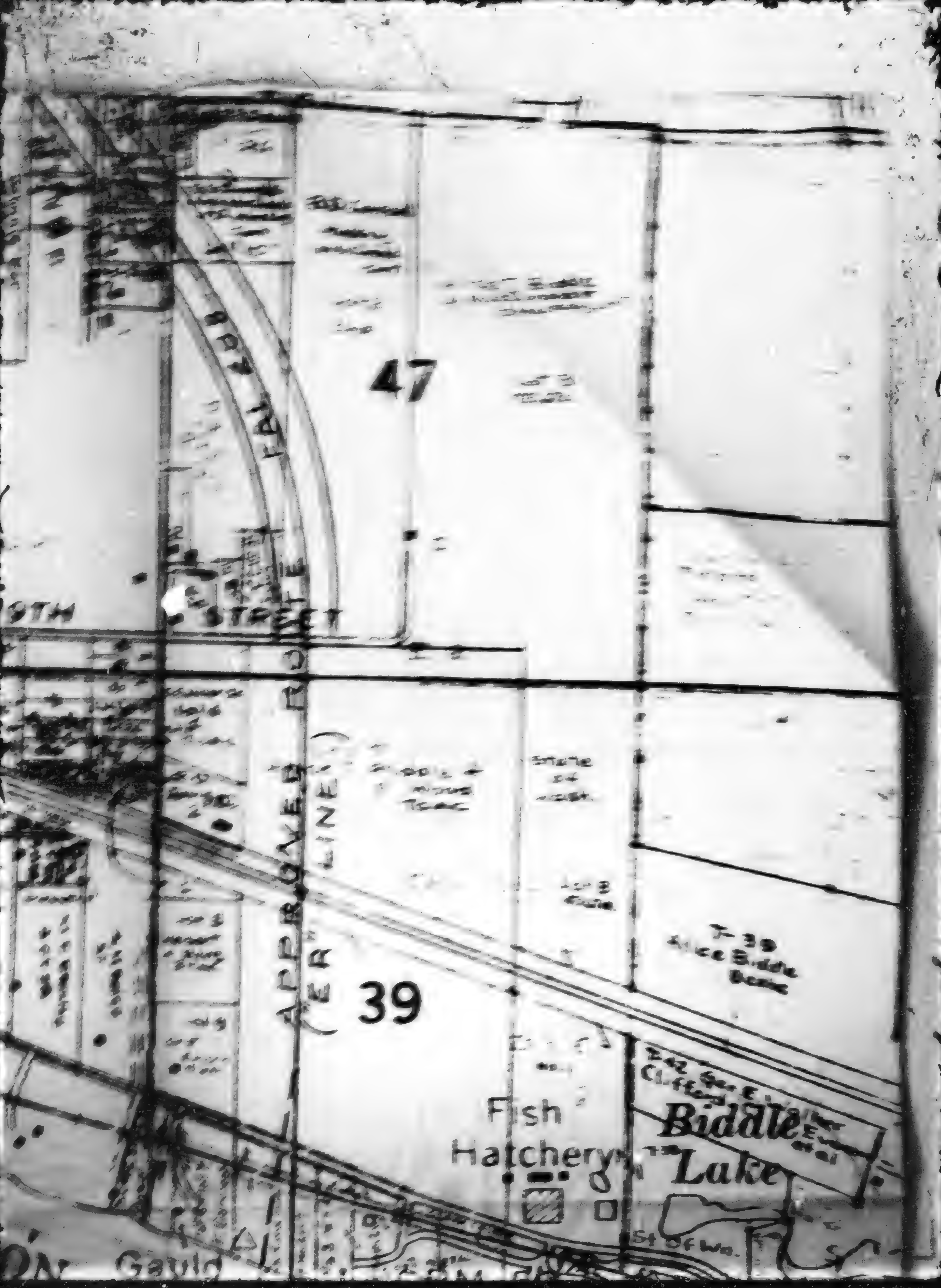
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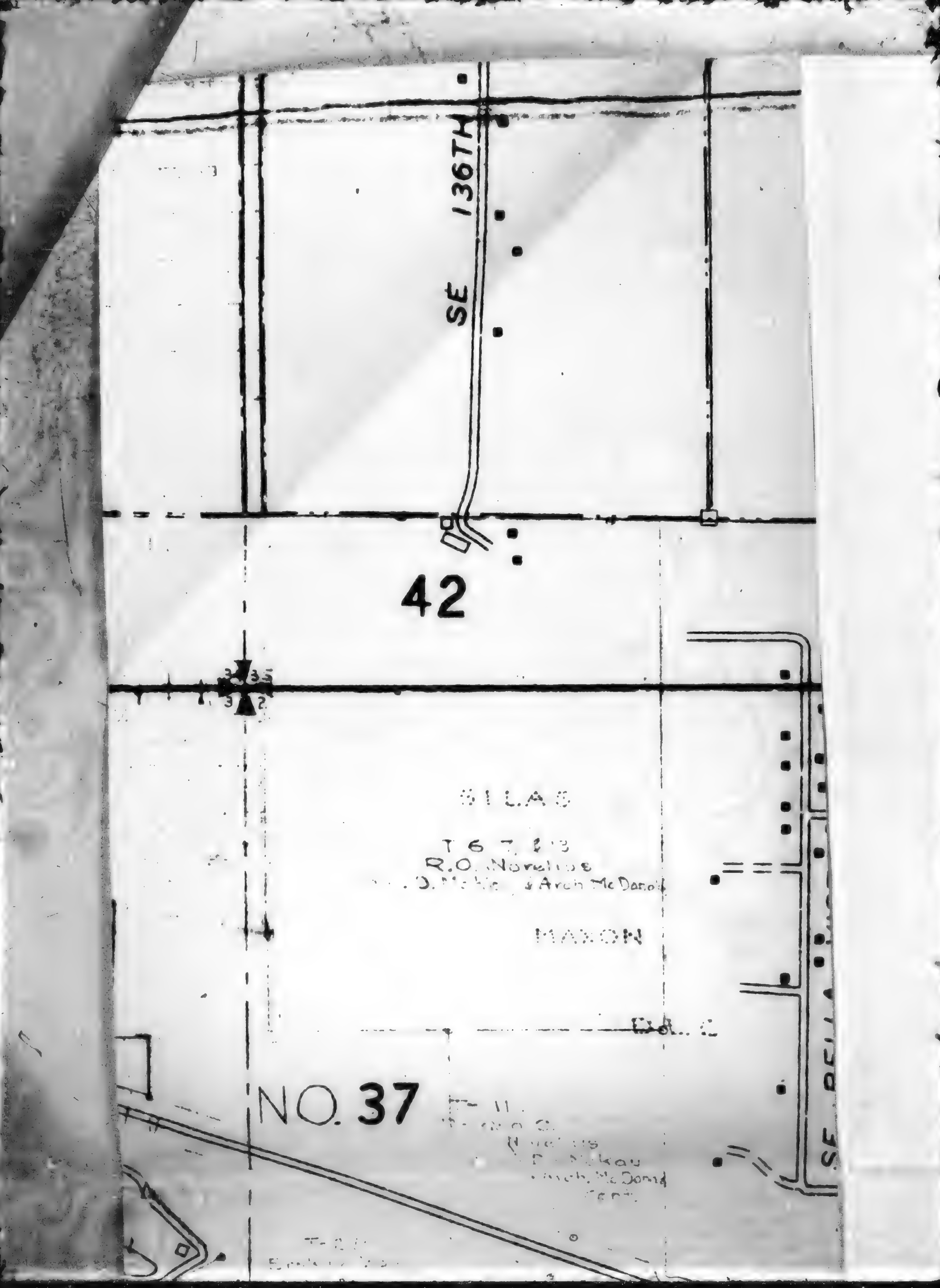
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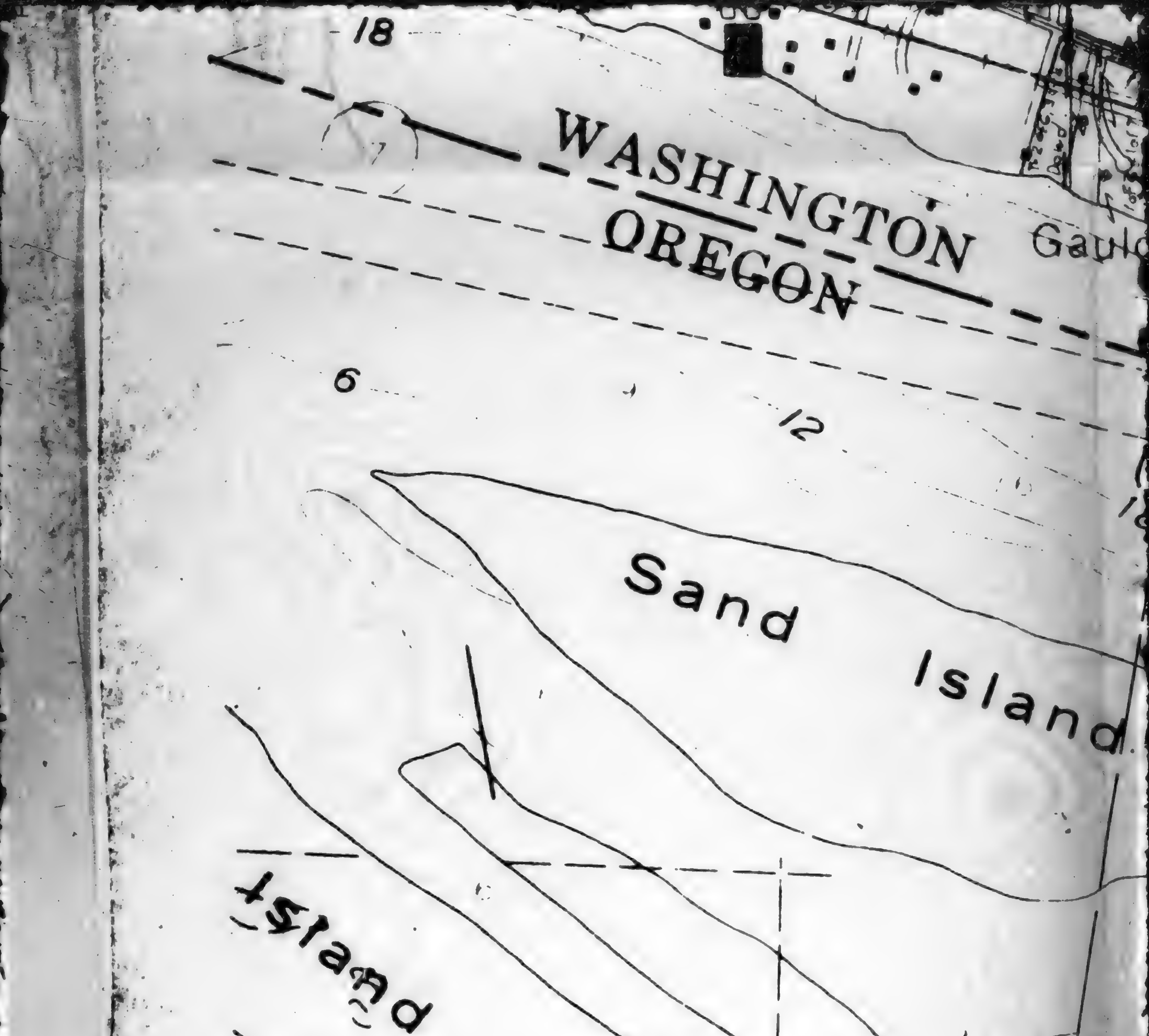
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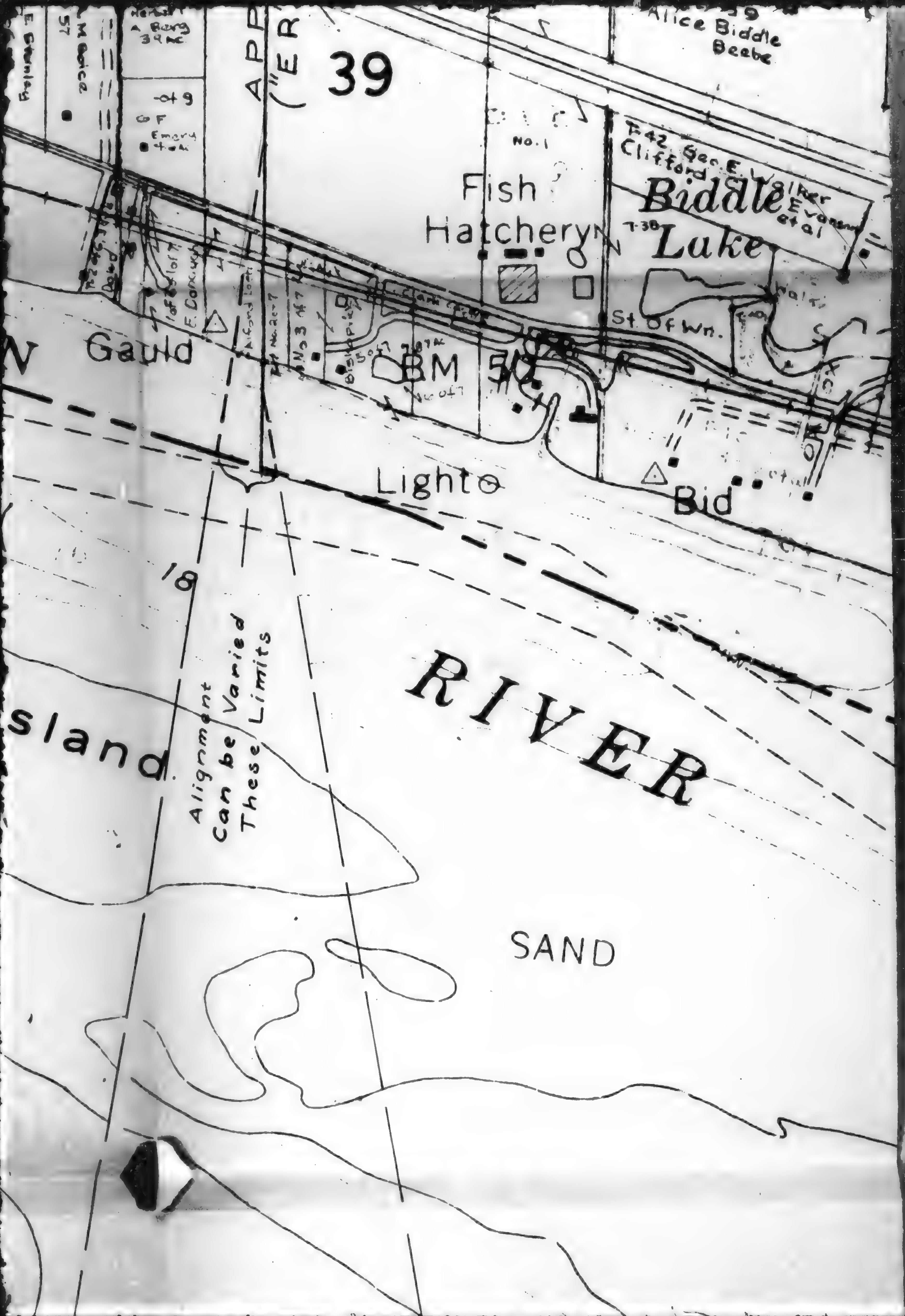
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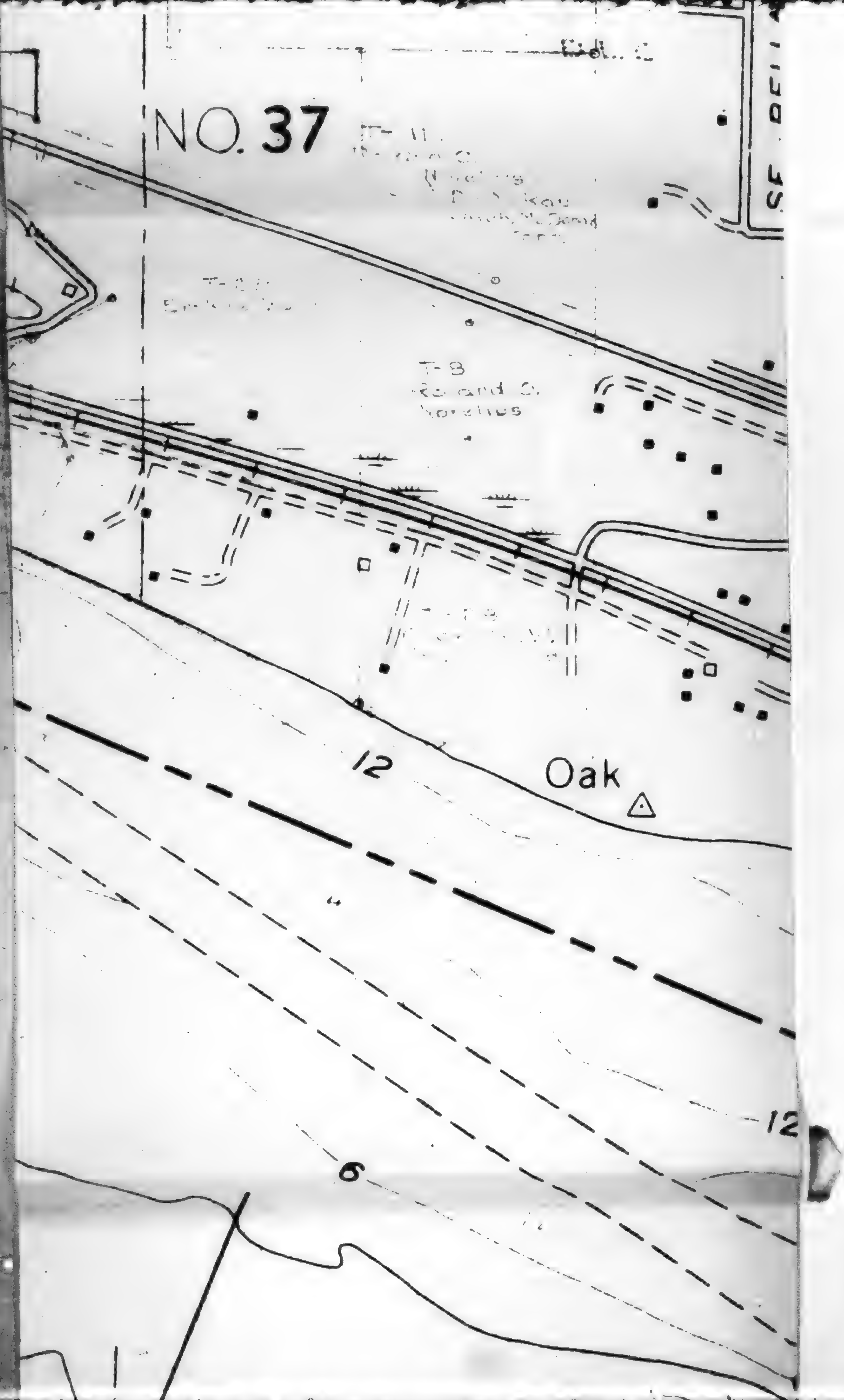
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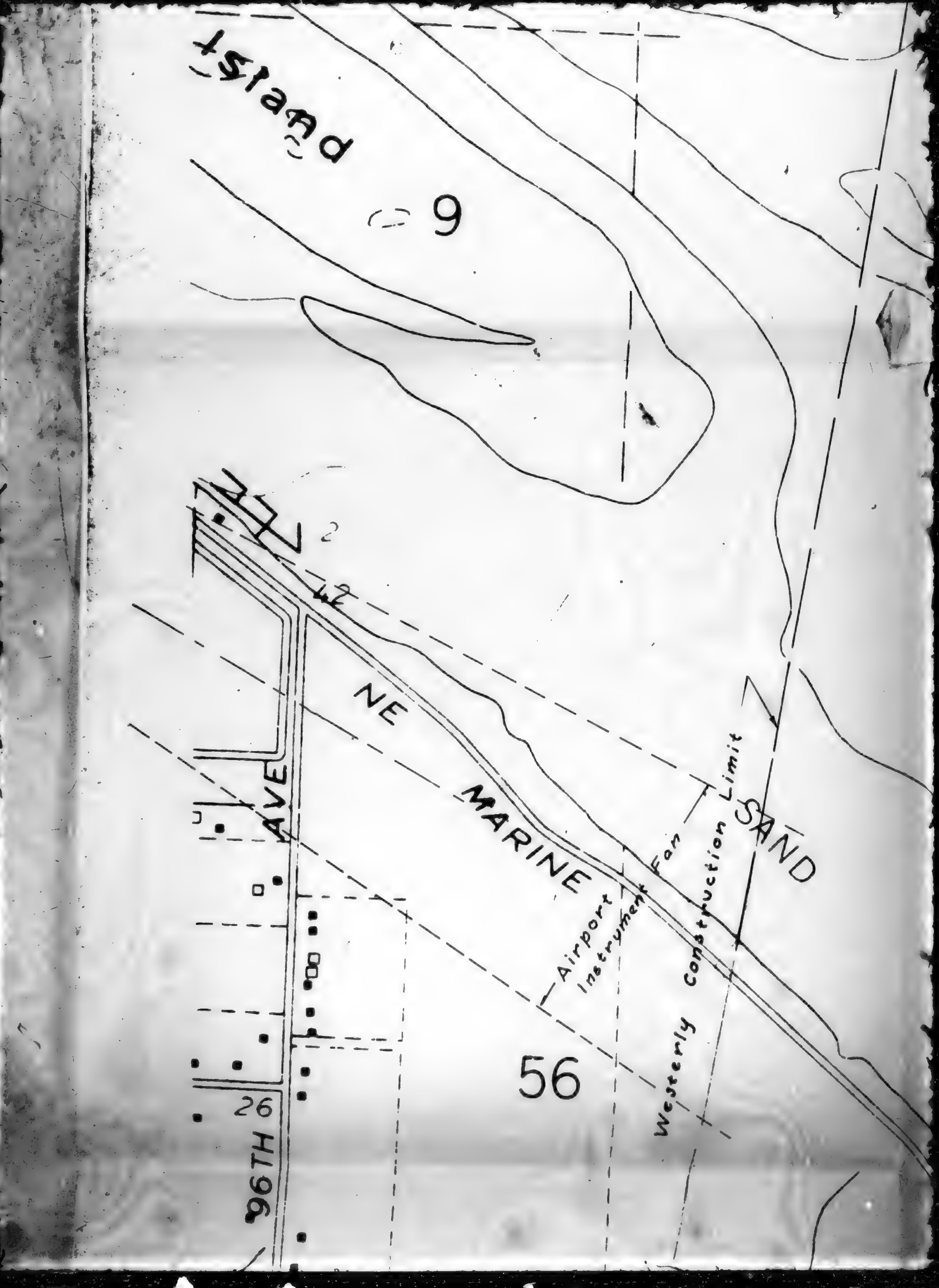
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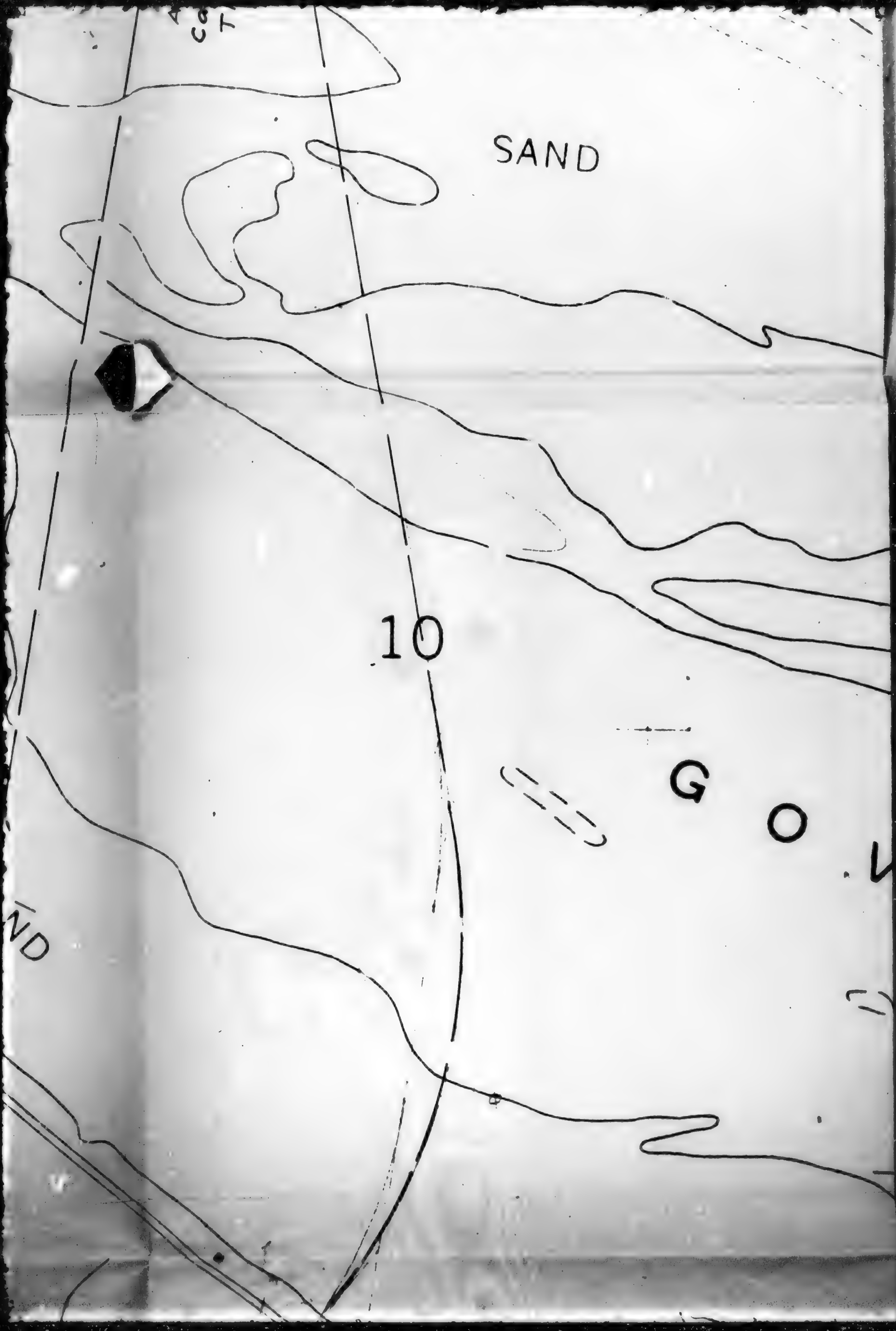
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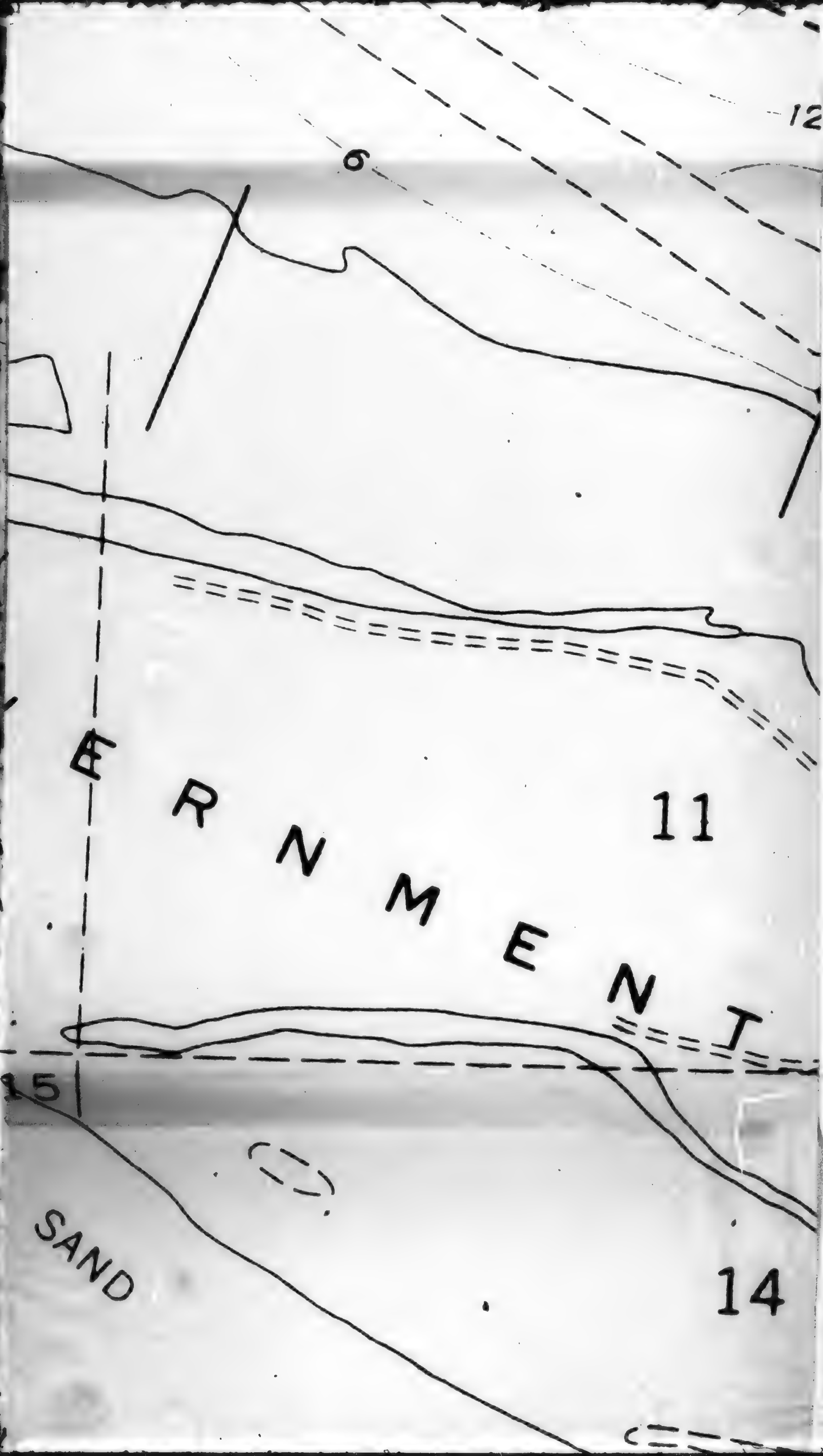
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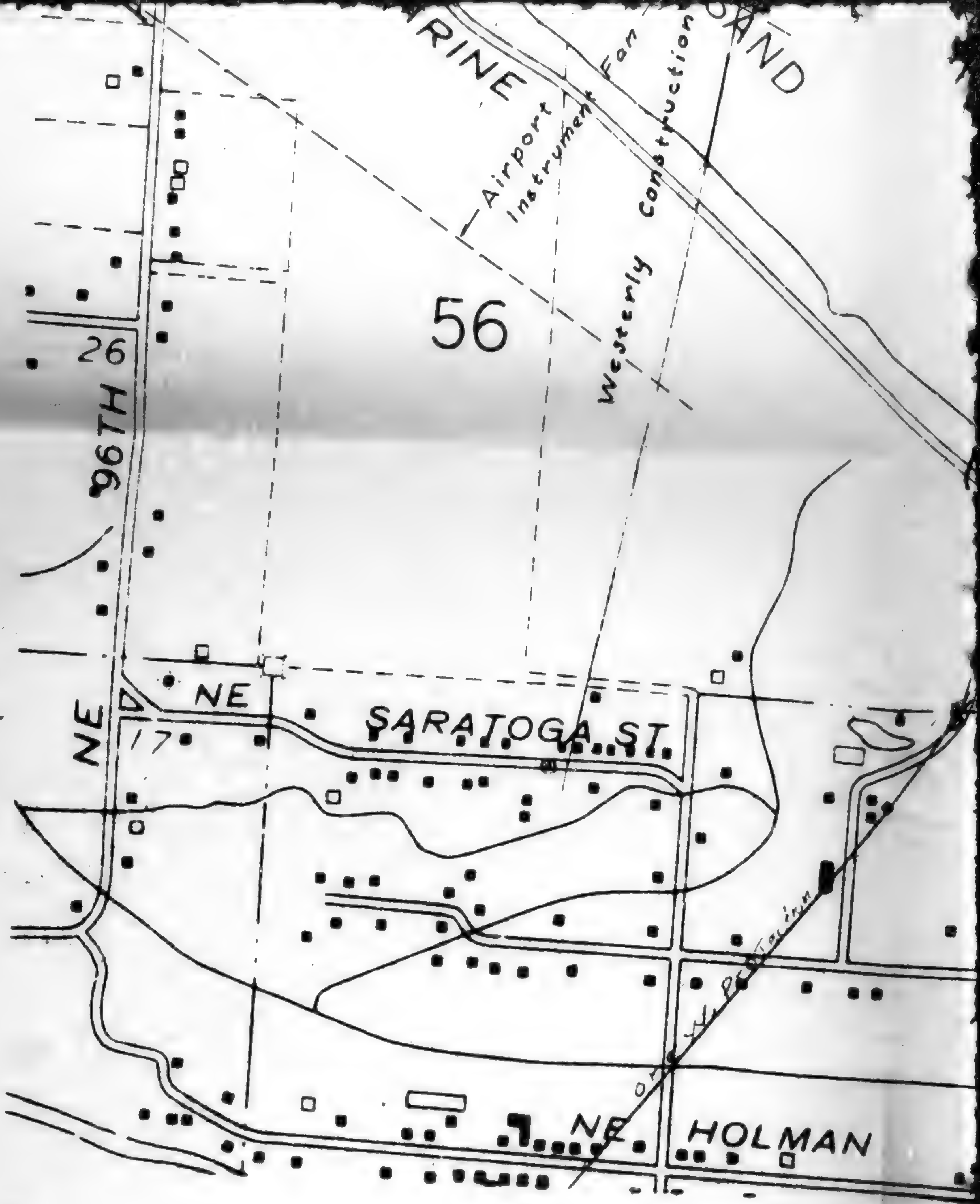
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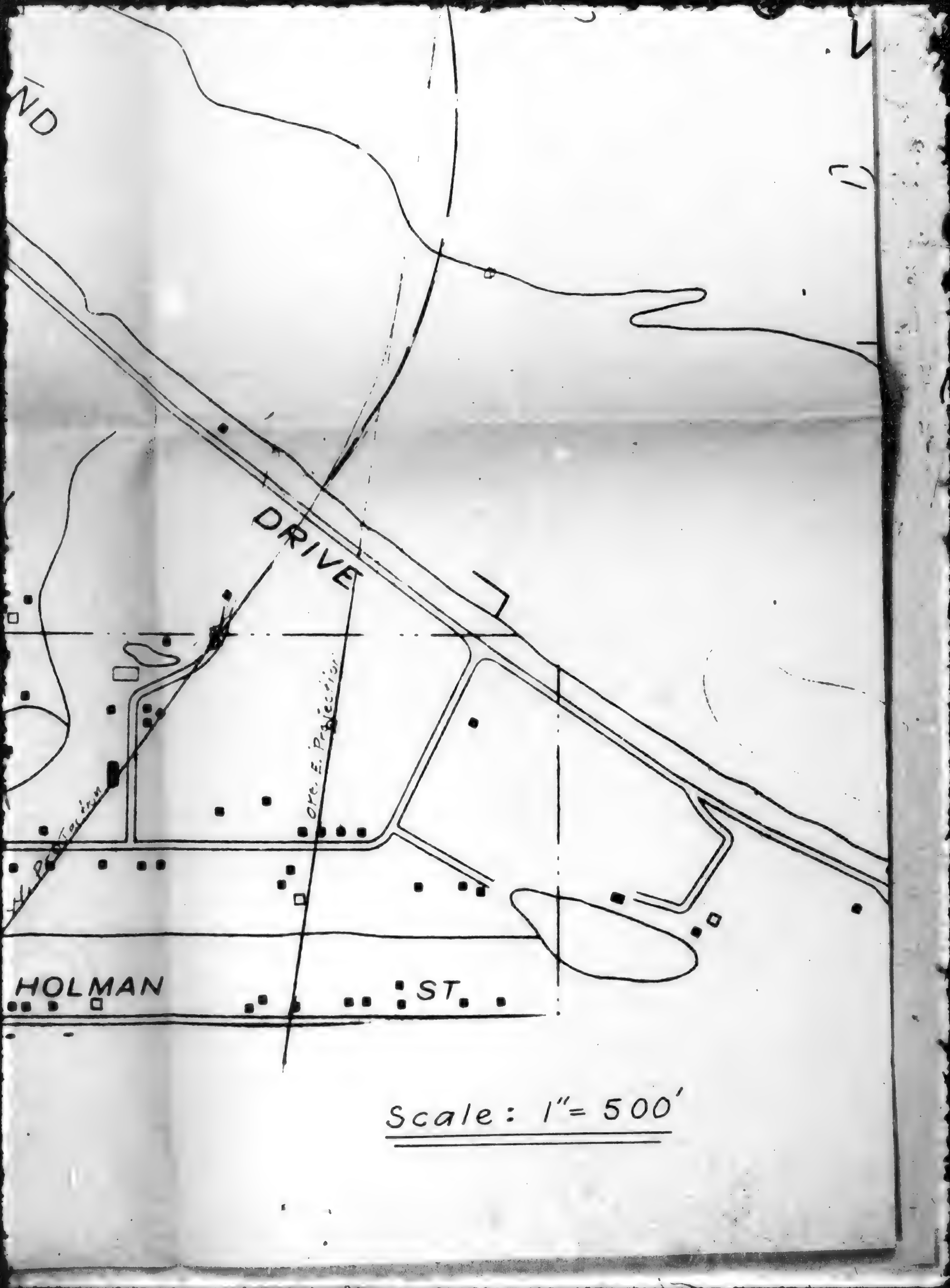
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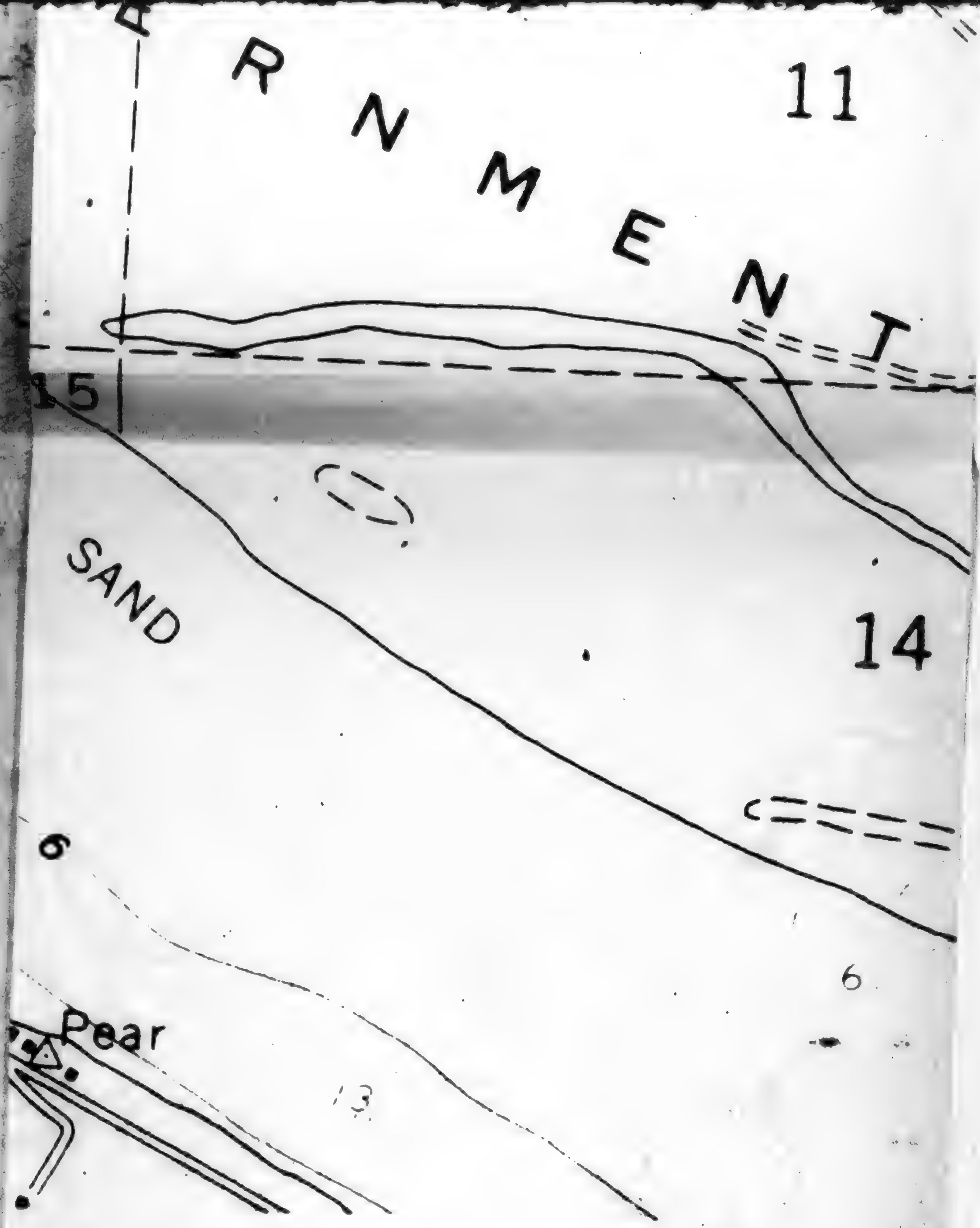
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WASHINGTON STATE DEPT.
OF HIGHWAYS
DISTRICT 4 VANCOUVER

E. G. NETTLETON
ACTING DIST. ENGR.

T. G. GRAY
LOCATION ENGR.

J. W. HARRIS PROJ. ENGR.

MARCH 29, 1966

STATE OF WASHINGTON
DANIEL J. EVANS, GOVERNOR

THE SEAL OF THE STATE OF WASHINGTON · 1889 ·

**WASHINGTON
STATE HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS**
C. G. PRAHL, DIRECTOR
HIGHWAYS-LICENSES BUILDING
OLYMPIA

COMMISSIONERS
GEORGE D. ZAHN, CHAIRMAN
METHOW
JAMES [illegible]
PUYALLUP
HAROLD WALSH
EVERETT
ELMER C. HUNTLEY
THORNTON
ROBERT L. MIKALSON
CENTRALIA

LORENZ GOETZ, SECRETARY
OLYMPIA

DISTRICT OFFICES
NO. 1 SEATTLE 98108
6431 SO. CORSON AVE.
NO. 2 WENATCHEE 98801
P. O. BOX 98
NO. 3 OLYMPIA 98501
P. O. BOX 327
NO. 4 VANCOUVER 98663
4200 MAIN STREET
NO. 5 YAKIMA 98901
P. O. BOX 52
NO. 6 SPOKANE 99205
N. 2714 MAYFAIR ST.
NO. 7 SEATTLE 98109
909 FAIRVIEW AVE. NO.

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APR 1 1966
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Const
RKM
EPF

Col. R. King

March 31, 1966

Mr. F. B. Klaboe
Assistant State Highway Engineer
Oregon State Highway Department
Salem, Oregon 97310

Interstate 205

Dear Mr. Klaboe:

Receipt is acknowledged of your letter of March 29th in which you advise this office that Mr. D. J. Barbee, Assistant Construction Engineer in charge of design and location, has been assigned as coordinator for the location and design work on Interstate 205 as it relates to the states of Washington and Oregon at the state line. In my previous letter I neglected to advise the address and telephone number of Mr. Tom Gray who has been assigned as coordinator for the design work on Interstate 205 in the State of Washington. Mr. Gray's office is located at the State Highway District Office in Vancouver, P. O. 1717 and his telephone number is 693-3623.

Since my previous letter to you, Mr. W. A. Bulley has been named as District Engineer for Vancouver to replace Mr. Eason who left some time ago to accept a position in Africa. We anticipate that Mr. Bulley will assume the duties of his new position on April 25th.

Mr. Gray has been ill with the flue for the past week but I am sure that he will furnish you with the information requested in your previous letter as soon as he is back on the job.

Very truly yours,

C. G. PRAHL, P. E.
Director of Highways

W. E. McKibben
By: W. E. McKIBBEN, P. E.
Deputy Director

REFERRED TO
Porter - Barbee -
By Asst. State Hwy. Engr.
Johnson
4-1-66

CGP:ro
WEM
cc: Tom Gray w/attach.

RECEIVED
APR 1 1966
OFFICE OF
STATE HIGHWAY ENGINEER

RECEIVED
MAR 29 1966
FOR FILING

Const
R/W
I-205

March 29, 1966

Mr. W. E. McKibben, P. E.
Deputy Director
Washington Department of Highways
Highways-Licenses Building
Olympia, Washington

Dear Mr. McKibben:

Re: Interstate 205

Thank you for your letter of March 24 in which you advise that Mr. Tom Gray, District Location Engineer at Vancouver, will act as the Washington State Highway Department Coordinator for I-205.

We are assigning as our Coordinator, Mr. D. J. Bartee, Assistant Construction Engineer in charge of design and location. Mr. Bartee can be reached at the State Highway Building in Salem, telephone 364-2171, extension 1057.

We will be looking forward to receiving the information on the location of the highway in Washington and to working closely with Mr. Gray.

Very truly yours,

Forrest Cooper
State Highway Engineer

By

F. B. Klaboe
Assistant State Highway Engineer

FBK:arb

cc: Forrest Cooper
R. L. Porter
Tom Edwards
F. D. Morgan

A. E. Johnson
L. W. Rulien

STATE OF WASHINGTON
DANIEL J. EVANS, GOVERNOR

COMMISSIONERS
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OLYMPIA

WASHINGTON
STATE HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS
C. G. PRAHL, DIRECTOR
HIGHWAYS-LICENSES BUILDING
OLYMPIA

DISTRICT OFFICES
NO. 1 SEATTLE 98108
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NO. 5 YAKIMA 98901
P. O. BOX 52
NO. 6 SPOKANE 99205
N. 2714 MAYFAIR ST.
NO. 7 SEATTLE 98109
900 FAIRVIEW AVE. NO.

March 24, 1966

Mr. F. B. Klaboe
Assistant State Highway Engineer
Oregon Highway Department
Salem, Oregon 97310

copies
ret orig to me

REFERRED TO
Cooper - Elmer.
By Asst. State Hwy. Engr.
3-28-66

Interstate 205

Dear Mr. Klaboe:

Reference is made to your letter of March 21st in which you request the best data which we have available on the location of Interstate Route 205 as it affects the Columbia River crossing.

As you know, we have held a route hearing on the portion of Interstate 205 which lies in the State of Washington and which has been tentatively approved by the State Highway Commission as well as the Bureau of Public Roads. This route, however, was in the general corridor for the location of this facility and is not tied to an exact specific centerline location. We are presently negotiating with the consulting firm of Cornell, Howland, Hayes & Merryfield of Portland to make the necessary location studies and to prepare right of way plans for this improvement. I am sure, however, that our Vancouver District Office can furnish you with maps which will show our present thinking of the location in the vicinity of the Columbia River with sufficient accuracy to permit you to make your first contacts with the Corps of Engineers regarding future permit requests for vertical clearances, fill slopes etc.

As you know, Mr. Eason, former District Engineer at Vancouver, resigned earlier this year to accept a position with a consulting firm in Cameroon, Africa. It is anticipated that a replacement for Mr. Eason will be named within the next few days. In the meantime I am requesting the acting District Engineer, Mr. Ed Nettleton, to furnish you with copies of our proposed location at the river crossing with the understanding that some minor changes might occur in the final location as made by the consulting firm but which should be very minor in nature. I am also asking the District to furnish you with the approximate grade line of the proposed highway on the Washington side of the river so that you might include the necessary data in your request to the Corps of Engineers.

This office concurs in your assumption that the primary responsibility for design and construction of the bridge across the Columbia River will rest with the State of Oregon because the major portion of the bridge will be in the State of Oregon. I am sure that there will be numerous occasions to contact the Oregon Highway Department in completing the location and design work and the preparation of the PS&E for this improvement. Until further notice we wish to advise that Mr. Tom Gray, District

Location Engineer at Vancouver, will coordinate these activities for the Washington Highway Department. We would appreciate advice from you as to the individual in your department to whom correspondence should be addressed and who may be contacted by Mr. Gray in the coordination of these activities. After we have completed the negotiations of the location and design contract with the consultant, we will advise them that their contacts with the Oregon Highway Department will be made through the District Engineer at Vancouver.

I am sure that you will obtain the data which is available at this time from the District Office within the next week or ten days which will permit you to proceed with your preliminary layout reports on the river crossing.

Very truly yours,

C. G. PRAHL, P. E.
Director of Highways

W. E. McKibben
By: W. E. McKIBBEN, P. E.
Deputy Director

CGP:ro
WEM
cc: E. G. Nettleton
G. H. Andrews

RECEIVED
MAR 25 1966
OFFICE OF
STATE HIGHWAY ENGINEER

RECEIVED
MAR 25 1966
OREGON
STATE HIGHWAY COMMISSION

RECEIVED
MAR 21 1966
FOR FILING

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EPF -

March 21, 1966

Mr. C. G. Prahl
Director of Highways
Washington State Highway Department
Highways-Licenses Building
Olympia, Washington 98501

Dear Mr. Prahl:

Re: Interstate 205

We would appreciate receiving the best data available on your routing of Interstate 205 as it would affect the Columbia River crossing.

We have made no attempt to tie our line down for some distance south of the river in order to be able to fit any of the various alternates which you have explored in the past. We understand that you have determined your approximate routing and, therefore, wish to refine our alignment as much as possible.

Since most of the bridge is in Oregon, we presume that primary responsibility for design and construction will be ours and, with this in mind, we wish to start discussions with the Corps of Engineers on vertical clearances, filling in the river, et cetera, so that these matters may be cleaned up at an early date.

Your comments, suggestions and the best data available (with the probable accuracy) will be appreciated.

Very truly yours,

Forrest Cooper
State Highway Engineer

By

F. B. Klaboe
Assistant State Highway Engineer

cc: Forrest Cooper
R. L. Porter
F. D. Morgan
A. E. Johnson
L. W. Rulien

ADO:jp srb

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Form CD-121
(11-63)
(Pres. by
A.O. 206-10)

UNITED STATES GOVERNMENT

# Memorandum

U.S. DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS
477 Cottage Street NE.
Salem, Oregon 97301

Comm

TO : KBC Mr. Forrest Cooper, State Highway Engineer
Salem, Oregon
EPA

DATE: March 7, 1966

In reply refer to: 08-35-EC/711.11

A. W. Parsons

FROM : A. W. Parsons, Division Engineer
Salem, Oregon

NOTED
F. B. KLABOE

REFERRED TO
Young - [illegible] - Morgan
BY ASST. STATE HWY. ENGR.
3-14-66

SUBJECT: Oregon Interstate System, I-205
Routing and Final Location

cc Merchant Cf 3-17-66

Boyter

Our December 16, 1965 memorandum on the above subject accepted the corridor routing for Interstate Route 205 as delineated on the map attached to Mr. Klaboe's October 29, 1965 letter.

Upon further review of available material we have reconsidered our previous requirement for additional hearing(s) prior to final location approval. The public hearings already held are now found to meet the requirements of Section 128, Title 23 USC, as regards the lines which were presented. Furthermore, Mr. Klaboe's February 16, 1966 letter presented comparative information for the various alternates studied in the Parkrose - Rocky Butte vicinity. Our Regional office also confirms the fact that locations proposed by the States of Oregon and Washington are in agreement on the State line crossing. On this basis the final location between intermediate control points, (1) Junction Interstate Route 5 near Avery Road, (2) Lake Road Interchange north of Gladstone, and (3) Oregon - Washington State line near Government Island as requested in your letter dated October 29, 1965 is hereby approved.

Advancement of projects on the approved routing may be handled in the usual manner. Requests for authorization to proceed with preparation of construction plans may be submitted on a section-by-section basis following our approval of preliminary plans involving preliminary layouts of interchanges, number of lanes, separations, airport clearance details, etc., in accordance with the penultimate sentence of subparagraph 4i of PPM 21-3. Correlation with the planning process and, for the section of the route within the City of Portland, results of the street closure hearings should be given consideration.

Prior to or concurrently with the preliminary engineering actions, projects may be programed in Stage 2 and authorization obtained in a similar manner covering acquisition of any part of the right of way between project termini in accordance with subparagraph 4b(1) of PPM 21-1(8).

BUY U.S. SAVINGS BONDS REGULARLY ON THE PAYROLL SAVINGS PLAN

Copies to Commission 3-9-66

Consultant agreements, if any, should provide for approval of preliminary plans and authorization of preparation of construction plans in a similar manner, if applicable.

Consideration for our approval of city agreements, furnished with Mr. Cox's February 4, 1966 letter, also will follow approval of preliminary plans as noted previously, as well as modification of the general provision(s) involving city approval of final design plans.

Our General Counsel has indicated that such articles in the general provisions of the agreements should be revised to make city approval necessary only on such features of the highway location and design as are anticipated by State law. While Title 23 U.S.C. Section 134 requires Federal approval of projects in urban areas of more than 50,000 population to be based on a comprehensive cooperative planning process by the States and local communities, the statute also at Section 302 requires any State desiring to avail itself of the provisions of the title to have a State highway department which shall have adequate powers to discharge to the satisfaction of the Secretary the duties required by Title 23.

It should therefore be noted that if the authority granted the city under State law is interpreted in such a manner that the city's exercise thereof necessitates a finding by the Federal Government that the State highway department does not have the required authority to discharge the duties required by Title 23 U.S.C., Federal-aid participation in the State may be placed in jeopardy.

Because these articles appear to be somewhat ambiguous, in any event, and because of the above-stated situation, it is suggested that such articles be carefully reworded to provide for only the necessary cooperation between the city and State.

In addition you should furnish justification for consideration of installation of water lines on the Willamette River bridge in West Linn as an extreme case in accordance with AASHO policy prior to our approval of your agreement with that city.

1979 Columbia R. Br. (N. Channel 6909
Superstruc.) Sec. of E. Ptld. Fwy.
(Structure) #1

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November 16, 1965

The Port of Portland
Swan Island
Post Office Box 3529
Portland, Oregon 97208

Re: Portland International
Airport Access
Interstate 205
Multnomah County

Attention: Mr. R. A. Baumeister
Assistant General Manager

Gentlemen:

Reference is made to your letter of October 28 in regard to access to the Portland International Airport from the proposed Interstate 205 freeway.

An interchange has been proposed by Multnomah County and tentatively included in our studies. I believe that it would be in order for you to discuss this matter with the County officials to correlate your plans after which we would be anxious to meet with you to further discuss the matter. Please advise when this would be convenient.

Very truly yours,

Forrest Cooper
State Highway Engineer

By

F. B. Klaboe
Assistant State Highway Engineer

cc: Paul C. Northrop
County Engineer and Roadmaster
Multnomah County

Forrest Cooper
R. L. Porter
Victor D. Wolfe
F. D. Morgan

ADO:jp bg

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*Mgr., Marine Dept.*
A. J. HEINEMAN
*Comptroller*
E. W. BAUER
*Mgr., Research and Planning*
W. S. DIRKER
*Chief Engineer*
R. F. DOW
*Mgr., Public Information*
W. G. PROCTOR

THE PORT OF PORTLAND

Swan Island, ~~P.O. Box 3529, Portland~~, Oregon 97208

Telephone 503-285-5271

Routing
Morgan
Decker
Bond
Barbee
Walker
Clemm
Swan

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NOV [illegible] 1965
CONSTRUCTION
DIVISION

In reply refer to:

2002

NOV 1 65

October 28, 1965

REFERRED TO
Klaboe

Mr. Forrest Cooper
State Highway Engineer
Oregon State Highway Department
Salem, Oregon

Dear Mr. Cooper:

Reference is made to your October 15, 1965 letter regarding a direct highway connection between Portland International Airport and the new I-205 Freeway.

In response to your request for further details regarding this highway connection, I am enclosing the following material:

1. Two copies of a supplement to the Portland International Airport Traffic Study of October 22, 1964 entitled "Ground Traffic Growth Trends, Portland International Airport and Vicinity". Copies of the original traffic study were transmitted to you on October 26, 1964, along with a letter from Mr. George Baldwin.

2. Two alternative layouts of the highway connection between the airport and the freeway. These are to be considered as schematic only. They are, however, indicative of the type of high quality access which we feel is so necessary.

After you have had an opportunity to study this material, we would like to meet with you and your staff to discuss this matter further.

Very truly yours,

THE PORT OF PORTLAND

R.A. Neumeister

R. A. NEUMEISTER
Assistant General Manager

RECEIVED
NOV 1 1965
OFFICE OF
STATE HIGHWAY ENGINEER

VICTOR D. WOLFE

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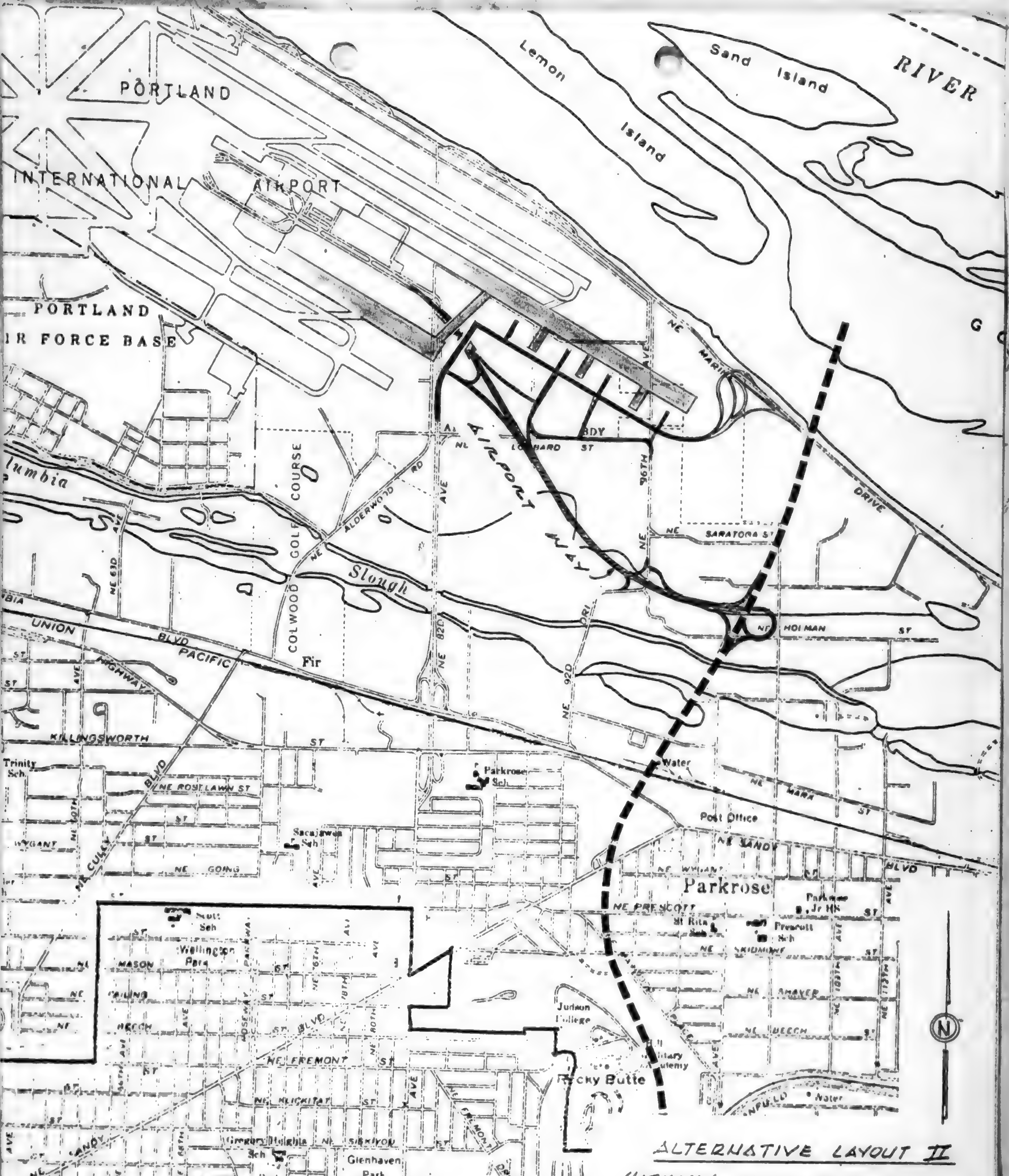
OREGON
STATE HIGHWAY COMMISSION

Enclosures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INTERNATIONAL AIRPORT
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Sand Island
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NE MARINE DRIVE
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NE LOMBARD ST
NE 96TH
NE SARATOGA ST
NE HOLMAN ST
Columbia Slough
GOLF COURSE
COLWOOD
NE ALDERWOOD RD
NE 82D AVE
NE 92D DR
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Parkrose Sch.
Sacajawea Sch.
WYGANT
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NE CULLY BLVD
Water
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Post Office
NE SANDY BLVD
NE WYGANT
Parkrose
NE PRESCOTT
Parkrose Jr HS
St Rita Sch.
Prescott Sch.
NE SKIDMORE
NE SHAVER
NE BEECH
Scott Sch.
Wellington Park
MASON
SISKIYOU
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NE FREMONT ST
NE KLICKITAT ST
Judson College
Military Academy
Rocky Butte
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Gregory Heights Sch.
Glenhaven Park
Madison High Sch.
NE SACRAMENTO
ROSE CITY GOLF COURSE
NE THOMPSON
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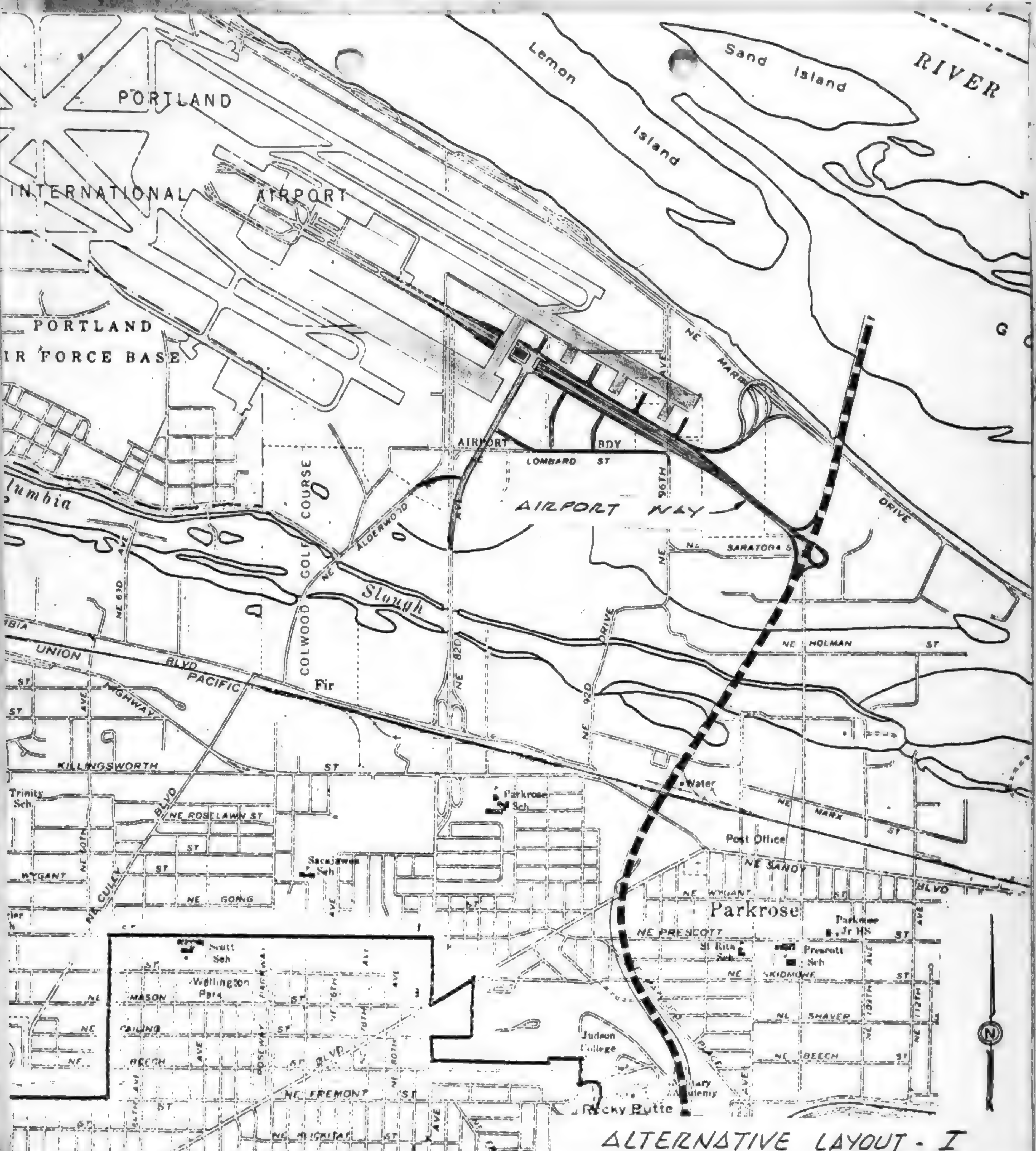
ALTERNATIVE LAYOUT II

HIGHWAY CONNECTION FROM PORTLAND INTERNATIONAL AIRPORT TO I-205 FREEWAY

SCALE 1" = 2000'
OCT. 28, 1965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INTERNATIONAL AIRPORT
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AIR FORCE BASE
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Sand Island
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NE SARATOGA ST
NE HOLMAN ST
COLWOOD GOLF COURSE
NE ALDERWOOD
NE 82D AVE
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96TH AVE
NE 63D
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WYGANT ST
NE GOING
NE CULLY BLVD
Parkrose Sch
Sacajawea Sch
Water
NE MARX ST
Post Office
NE SANDY BLVD
NE WYGANT ST
Parkrose
Parkrose Jr HS
NE PRESCOTT ST
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Judson College
Mary Academy
Rocky Butte
Scott Sch
Wellington Park
NE MASON ST
NE FAILING
NE BEECH ST
NE FREMONT ST
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NE SANDY
NE SACRAMENTO
Gregory Heights Sch
Glenhaven Park
Madison High Sch
ROSE CITY GOLF COURSE
NE THOMPSON
N

ALTERNATIVE LAYOUT - I

HIGHWAY CONNECTION FROM PORTLAND INTERNATIONAL AIRPORT TO I-205 FREEWAY

SCALE 1" = 2000'

OCT. 28. 1965

# GROUND TRAFFIC GROWTH TRENDS
# PORTLAND INTERNATIONAL AIRPORT AND VICINITY

Supplement to Portland International Airport Traffic Study
of October 22, 1964

## 24-HOUR TRAFFIC GENERATION, IN AND OUT

| | 1960 | 1980 Projection | 1960 - 1980 Growth Factor |
|---|---|---|---|
| Zone 373A(1) | 8,982(5) | 11,856(3) | 1.32(4) |
| Zone 373B(2) | 7,912(5) | 13,529(3) | 1.71(4) |
| Total Zone 373 | 16,894 | 25,385 | 1.50(3) |

## 24-HOUR TRAFFIC VOLUME, BOTH DIRECTIONS

| | 1965 | 1980 Projection |
|---|---|---|
| Airport Way @ 82nd | 6,390(6) | 8,400(8) - 16,000(9) |
| Marine Drive @ 96th | 4,500(7) | 7,140(10) |
| I-205 @ Lombard | -- | 21,400(11) |

## PASSENGERS/YEAR PROJECTIONS--PIA

| | 1960 | 1965 | 1975 | Growth Factor 1965-75 | Growth Factor 1965-80 | 1980 |
|---|---|---|---|---|---|---|
| FAA Trend(12) | 895,707 | 1,450,000 | 2,060,000 | 1.4 | | |
| Average FAA-Boeing Trends | | | | 1.7 | 2.55(14) | 3,700,000(14) |
| Boeing Trend(13) | 895,707 | 1,450,000 | 2,950,000 | 2.0 | | |

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(1) PVMTS Zone 373A includes the commercial area of PIA and Marine Drive between N. E. 47th and N. E. 82nd.

(2) PVMTS Zone 373B includes the military area of PIA and the area southward to the UPRR tracks between N. E. 47th and N. E. 82nd.

(3) Source: "1980 Zone-Zone Movements - Vehicles", TAC Library, Portland-Vancouver Metropolitan Transportation Study.

(4) Calculated based upon the growth factor 1.50 for Zone 373 and the person trips growth factors for Zone 373A and 373B given in the report "1960-1980 Growth Factors", by the Metropolitan Planning Commission, December 1962.

(5) Calculated from the 1980 projection and the 1960-1980 growth factors.

(6) Traffic count on June 18, 1965 by Multnomah County.

(7) Traffic count on May 18, 1964 by Multnomah County.

(8) Based upon the growth factor for PVMTS Zone 373A, which includes the commercial area of PIA.

(9) Based on the projected growth of passengers at PIA, assuming the 1965-1980 growth factor shown on this table.

(10) Peak-hour traffic was scaled from the "1980 Peak-Hour Traffic Volumes" map, p.23, from "I-205 Freeway Report", by the Oregon State Highway Department, October 1964. 24-hour traffic was calculated based on peak-hour traffic representing 14% of 24-hour traffic.

(11) Peak-hour traffic was scaled from Map No. 12 of "Interim Report, I-205 Location", by the Technical Advisory Committee of PVMTS, October 1964. 24-hour traffic was calculated based on peak-hour traffic representing 14% of 24-hour traffic.
(12) Based on the latest FAA trends on U. S. passenger projections.
(13) Based on Boeing Aircraft Company passenger projections for for the United States.
(14) Based on the average of the FAA and Boeing 1965-1975 growth factors, extended to 1980 by multiplying by 1.5. Calculations: (1.4 + 2.0 = 3.4 ÷ 2.0 = 1.7 X 1.5 = 2.55 X 1,450,000 = 3,697,500 - rounded to 3,700,000).

SHW:lj
10/25/65

8905.

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RECEIVED
APR 15 1968

FORM 2-30 50M 3-65 SP*6470-734

**FOR FILING**

# OREGON STATE HIGHWAY DEPARTMENT

INTER-DEPARTMENT CORRESPONDENCE

Portland, Oregon 97213
November 9, 1965

SUBJECT:

To: Mr. F. B. Klaboe
Assistant State Highway Engineer
State Highway Building
Salem, Oregon 97310

Reference is made to your telephone call this date requesting that I contact Mr. Stanley Bishoprick, who is associated with the firm of Dant & Russell Incorporated, Wholesale Lumber, 2000 S. W. Fifth Avenue, Portland, and who resides on the northerly side of the Columbia River east of Vancouver. I contacted Mr. Bishoprick and met with him this afternoon.

Mr. Bishoprick is concerned with the proposed route of I-205 and in particular with the proposed location of the new bridge over the Columbia River. I enclose a copy of a sketch map which was given me by him, together with data on four routes which he has indicated on the map. Indicated in red is the location of Mr. Bishoprick's residence. Our proposed Maywood line is indicated to cross just west of his property.

Mr. Bishoprick is concerned that such a location for a bridge would mar the views and aesthetic values from not only his property, but others to the east of him. He desires to have the location shifted to the east. He made quite a point of stressing the fact that, in his opinion, if the bridge were to cross at more direct right angles, such as his proposed east route, or erased route, the landscape disturbance would be minimized over an angular crossing such as the west route. Mr. Bishoprick stated that he discussed the location with Mr. Glenn Jackson, Chairman of our Commission, and was advised that the location of I-205 could be shifted even as far as 122nd Avenue. He indicated he had discussed the situation with Warren Nunn of the Governor's Office, and had also conferred with not only Mr. Dolliver, Governor's Aid in Washington, but also conferred

NOTED
R L PORTER

for about 25 minutes with Governor Evans of Washington. Governor Evans was given a similar sketch map and sheet of notes, as are enclosed for your information.

Mr. Bishoprick requests that the alignment be moved easterly approximately 3/4 mile and if this is not possible, at least be shifted to a right angle crossing no farther west than the easterly property line of his property. He has submitted comments on four routes, as shown on his sketches, and in his comments he has assumed that fills can be made over the portions of the line where it crosses Government Island. He also stresses that change in location would put the high channel crossing in the middle of the river, where he indicates it should belong.

Mr. Bishoprick can be contacted in care of Dant & Russell at the above-mentioned address in Portland. He stated that he intends to attend the hearing in Washington and circulate copies of his notes and sketch maps.

After attending the hearing tonight, a report will be submitted to you.

AE Johnson

A. E. Johnson
Metropolitan Engineer

AEJ:sh

Enclosures

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NOV 10 1965
OFFICE OF
STATE HIGHWAY ENGINEER

## Four Routes Indicated on Map

1) - Called West Route -
Total distance from Oregon shore to intersection of all routes = 22,450' with 8,000' of bridge
(14,200' in Washington)

2) - Called Erased Route -
Total distance from Oregon shore to intersection of all routes = 23,200' with 6,500' of bridge.
(15,400' in Washington)

3) - Called East Route -
Total distance from Oregon shore to intersection of all routes - 23,500' with 6,700' of bridge.
(16,000' in Washington)

4) - Alternate Route -
Total distance from Oregon shore to intersection of all routes = 26,500' with only 5,850' of bridge.
(18,700' in Washington)

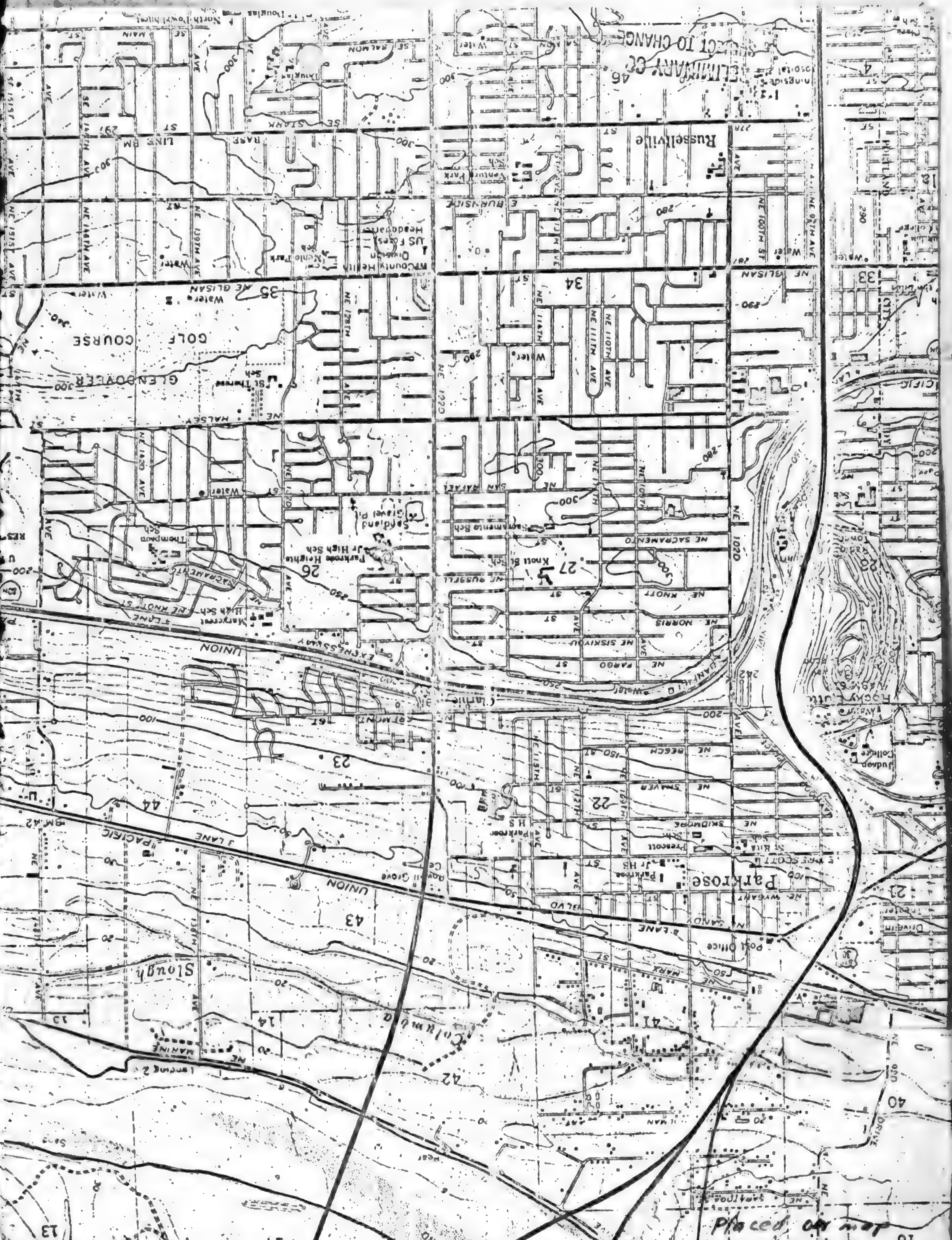
1. The West Route will require more bridge for two reasons - (1) Channel is nearest Washington side where bridge must be highest (154' clearance) to pass over channel and still 150' in air when it hits Washington shore, and (2) bridge will have to cross river at an oblique angle causing considerable more bridge - This route shortest but most expensive due to more bridge (1,500' more of bridge against 805' more highway.) This route disturbs the greatest number of residences.

2. All routes except alternate route pass through the most expensive residential property in Clark County, and in addition the West Route's oblique bridge blocks off the view across river of nearly one mile of these properties - the minimum of damage to the properties will be done by a perpendicular crossing of the river.

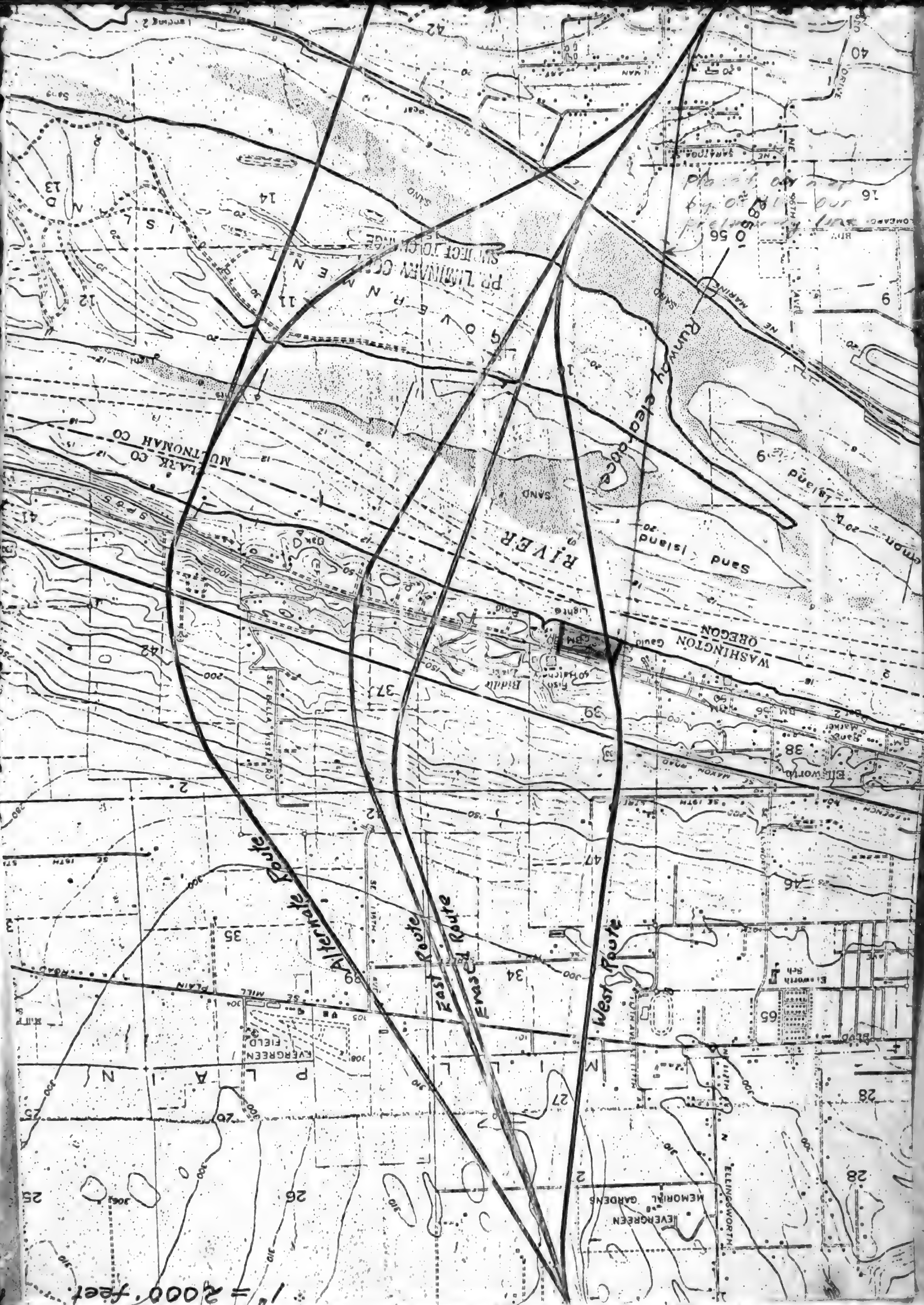
3. The East Route will disturb fewer number of houses than the other two as the only house in that area is a summer cottage, and furthermore put the channel crossing (high clearance) in the middle of the river where the engineers say it should be for cost and practicality.

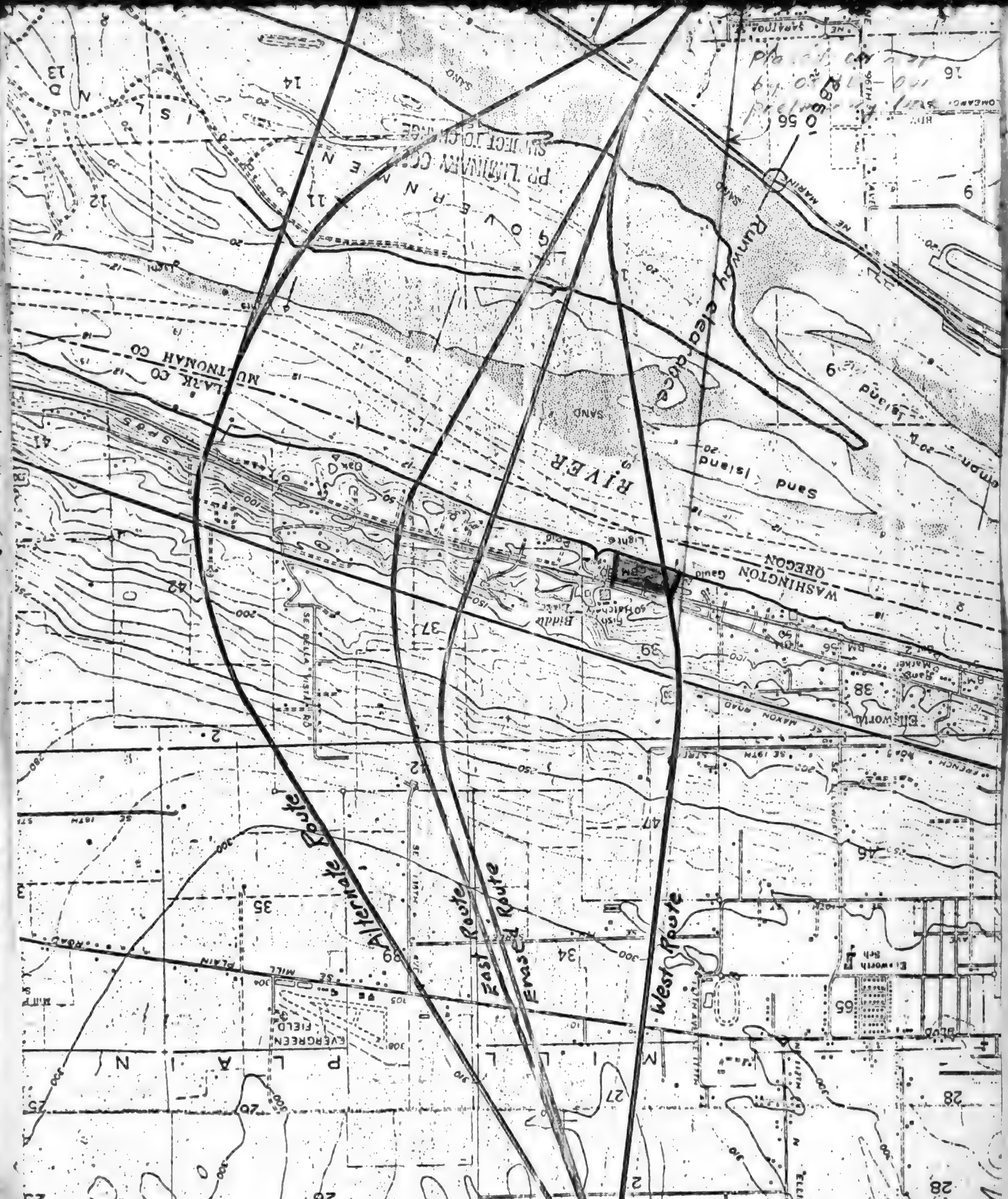
4. An alternate route 3/4 mile farther east will not disturb any residential homes and property, and give Oregon a better access to the Government Island recreation site. This route will require only 5,850' of bridge in 26,750' of highway. This is by far the best as it disturbs the least number of houses (none for first two miles from river), and minimizes the amount of landscape disturbance, becauses it crosses river at right angles to current and puts the high channel crossing in the middle of the river where it belongs, and where engineers advocate it.

Stanley Birkopick


PRELIMINARY CO
SUBJECT TO CHANGE
Russellville
SE STARK ST
BASE LINE
E BURNSIDE
NE GLISAN
GLENDOVEER GOLF COURSE
NE HALSEY
NE SAN RAFAEL
NE SACRAMENTO
NE RUSSELL
NE KNOTT
NE NORRIS
NE SISKIYOU
NE FARGO
Parkrose Heights Jr High Sch
Knott Sch
Sacramento Sch
Thompson Sch
Margaret High Sch
UNION PACIFIC
EXPRESSWAY
Rocky Butte
Judson College
NE BEECH
NE SHAVER
NE SKIDMORE
Parkrose H S
NE PRESCOTT
Parkrose
NE WYGANT
NE SANDY BLVD
Post Office
NE MARX ST
Columbia Slough
NE MARINE DRIVE
Russell Grove

Placed on map
by OSHD - our
preliminary line


Placed on map by O.H.L. – our preliminary line
Running elevation
Alternate Route
East Route
Erased Route
West Route
1" = 2000 feet
GOVERNMENT ISLAND
PRELIMINARY COPY SUBJECT TO CHANGE
SAND
RIVER
Sand Island
CLARK CO
MULTNOMAH CO
WASHINGTON
OREGON
EVERGREEN FIELD
EVERGREEN MEMORIAL GARDENS
ELLINGSWORTH
MILL PLAIN
NE MARINE



Alternate Route
East Route
Erased Route
West Route
Runway clearance
1" = 2000 feet
preliminary line
WASHINGTON
OREGON
RIVER
MULTNOMAH CO
Sand Island
GOVERNMENT ISLAND
EVERGREEN FIELD
EVERGREEN MEMORIAL GARDENS
Ellsworth

8905

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RECEIVED
OCT 26 1965
FOR FILING

October 26, 1965

Washington State Highway Commission
Department of Highways
Office of District Engineer
4200 Main Street
Vancouver, Washington

Attention: Mr. S. D. Mason, P. E.

Re: Columbia River Bridge Section
Interstate 205

Gentlemen:

Herewith a print showing your State's proposed river crossing line as submitted to us on October 6, and our east alternate. We are aware of the added costs involved with our east alternate; however, factors elsewhere will offset this. Our westerly line will coincide with yours of October 6 and, from all indications, we will probably settle on this westerly line.

Thank you for your concern in this matter.

Very truly yours,

Forrest Cooper
State Highway Engineer

By

F. B. Klaboe
Assistant State Highway Engineer

FBK:erb

Enclosure

cc: Mr. Forrest Cooper
Mr. R. L. Porter
Mr. F. D. Morgan

STATE OF WASHINGTON
DANIEL J. EVANS, GOVERNOR

1889

**WASHINGTON**
**STATE HIGHWAY COMMISSION**
**DEPARTMENT OF HIGHWAYS**
OFFICE OF DISTRICT ENGINEER
4200 MAIN STREET
VANCOUVER, WASHINGTON

Routing
Morgan
Decker
Bond
/ Barbee
Walker
Glenn
Swan

Pease
Morelock
Trout
Scott
Wills
Litchfield
Olson

RECEIVED
OCT 25 1965
CONSTRUCTION
DIVISION

October 22, 1965

Mr. Forest Cooper
Highway Engineer
Highway Building
Salem, Oregon

Attention: Mr. D. J. Barbee

Dear Sir:

PSH #1 (I-205) L-2096
Columbia River to Jct. PSH #1

As discussed with you by telephone this morning, I am attaching a copy of a letter submitted to our Headquarters Office concerning the costs from common points in Oregon and Washington for the two alignments that we have had under consideration. You, of course, have been aware that if you were to use the 109th Street route and we were to use the ER or westerly alignment in Washington that the costs in Oregon would be somewhat increased. Our Highway Commission was somewhat concerned as to whether you were fully aware of this cost, and we would appreciate an additional letter from you giving your approval to our proposal and stating that you are fully aware of the costs involved. I also understand that it is now probable you will follow the Rocky Butte route and would then wish to follow closely the route as the westerly limit that we previously submitted to you.

If at any time you feel that it would be advantageous to meet with you to more fully discuss our mutual problems we would be most pleased to do so at your convenience.

Very truly yours,

S D Eason

S. D. EASON, P.E.
District Engineer

SDE:ncl

cc: Mr. C. G. Prahl
Mr. G. H. Andrews

Attch.

DEPT. OF HIGHWAYS
DISTRICT NO. 4
REC'D. OCT 15 1965
Dist. Eng.
Constr.
Asst. Const.
Maint.
Asst. Maint.
Loc.
Asst. Loc.
Design
Traffic
Accts.
Personnel
Safety
R/W

October 15, 1965

Mr. C. G. Prahl
Director of Highways
Olympia, Washington

L-N096

Attn: Mr. A. W. Torn

PSH No. 1 (I-205) C.S. 0607
Columbia River to Jct. PSH #1

Dear Sir:

This is to supplement our letter of October 13, 1965 concerning the comparison of FAI-205 "E" and "ER" Lines.

In the "ER" line supplement to the FAI-205 reconnaissance, we submitted (page8) a comparison of costs between the "E" and "ER" Lines, starting at the Washington State line. In order to compare the two lines more fully, we are submitting a comparison as if taken from the Oregon shore of the Columbia River in line with Oregon's projection of the easterly, or NE 109th Street route. This follows their alignment across Government Island on the easterly location which they maintain is required to provide an interchange on the island. This routing presents the extreme easting that might occur and therefore favors the "E" line. In spite of this, the "ER" line distance and cost remain less than for the "E" line.

COMPARISON

| | "E" LINE | | "ER" LINE | |
|---|---|---|---|---|
| | Length | Cost | Length | Cost |
| Ore. Shore Columbia River (NE 109th St. route) to Washington State line. | 7,430' | $10,740,000 | 8,150' | $11,780,900 |
| Washington State line to Jct. of "E" and "ER" Lines. | 30,600' | 12,057,900 | 28,270' | 10,263,400** |
| | 38,030' | $22,798,000 | 36,420' | $22,044,300 |

Mr. C. G. Prahl October 15, 1965
Attn: Mr. A. V. Torn

| | | |
|---|---|---|
| "E" Line | 7.20 Miles | $22,798,000 |
| "ER" Line | 6.90 Miles | 22,044,300 |
| "ER" Line Saving | 0.30 Miles | $ 753,700 |

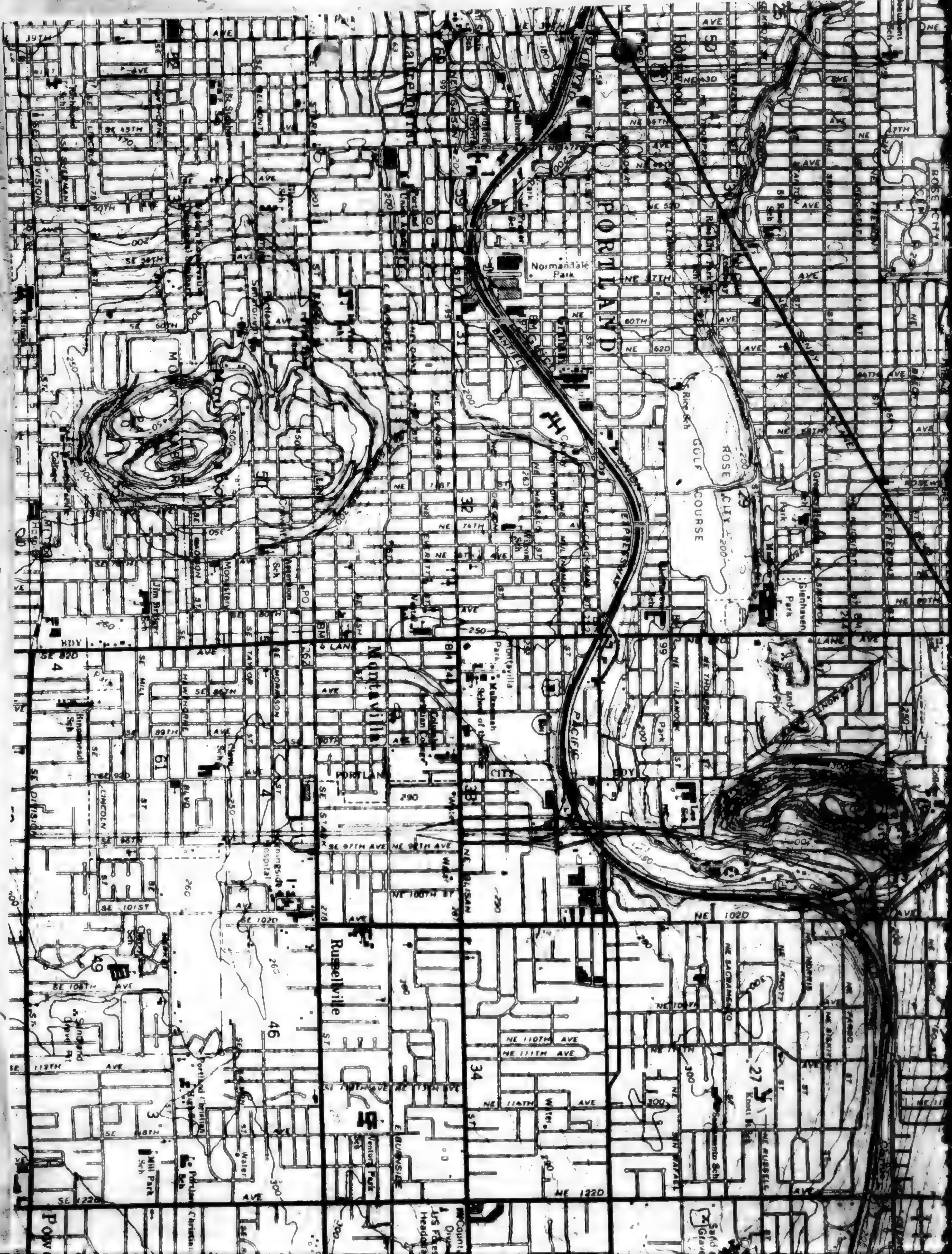
Note: 10% Engineering & Contingencies are included in the above figures.
**Above includes $185,000 added to "ER" due to Washington end of truss spans being lengthened 50' on projection of Oregon line.

Yours very truly,

S. D. EASON, P.E.
District Engineer

SDE:sm

c.c. - Mr. C. G. Prahl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PACIFIC
EXPRESSWAY
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SE 82D
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Mill Park Sch
Jim Bridger Sch
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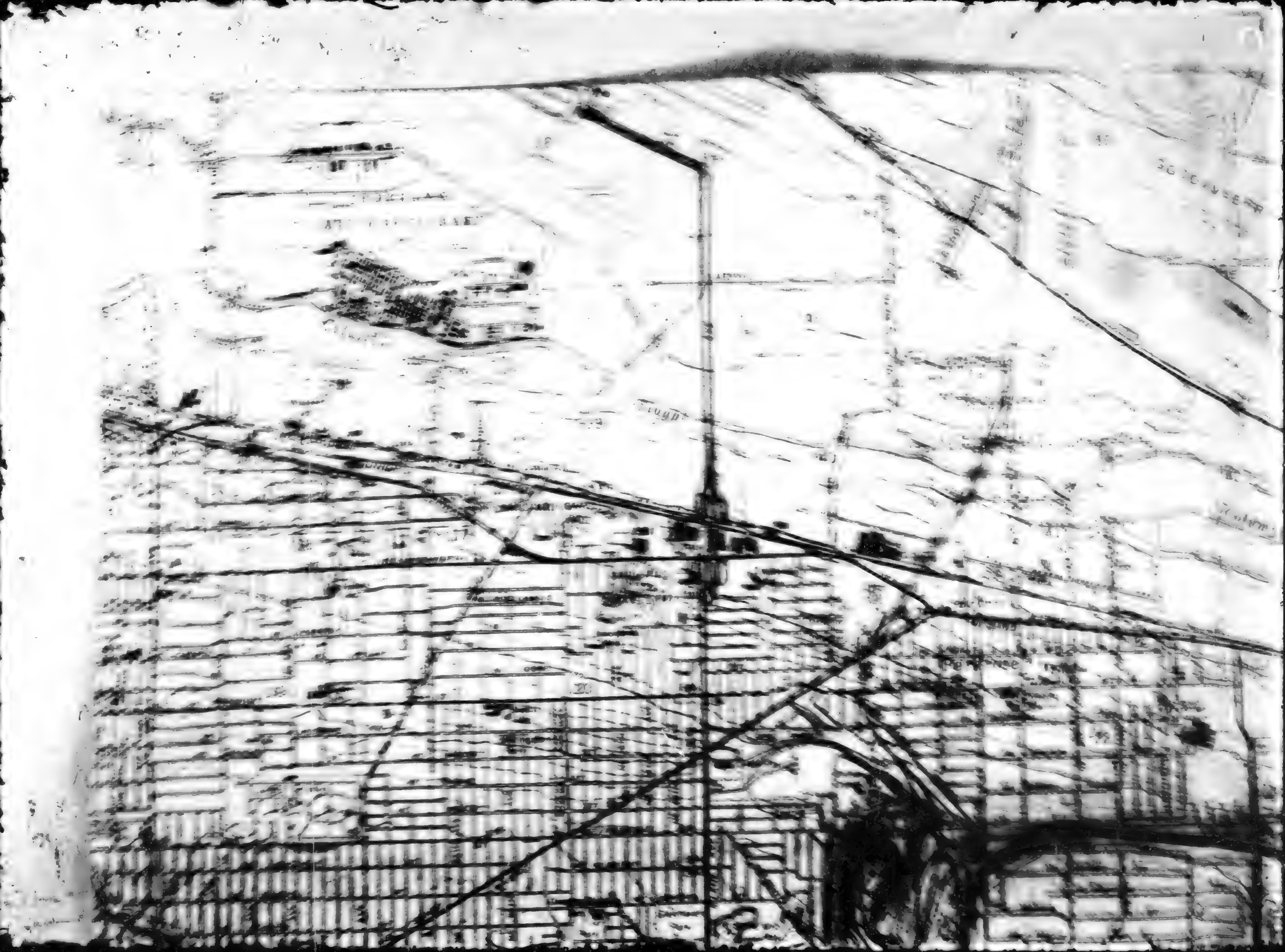

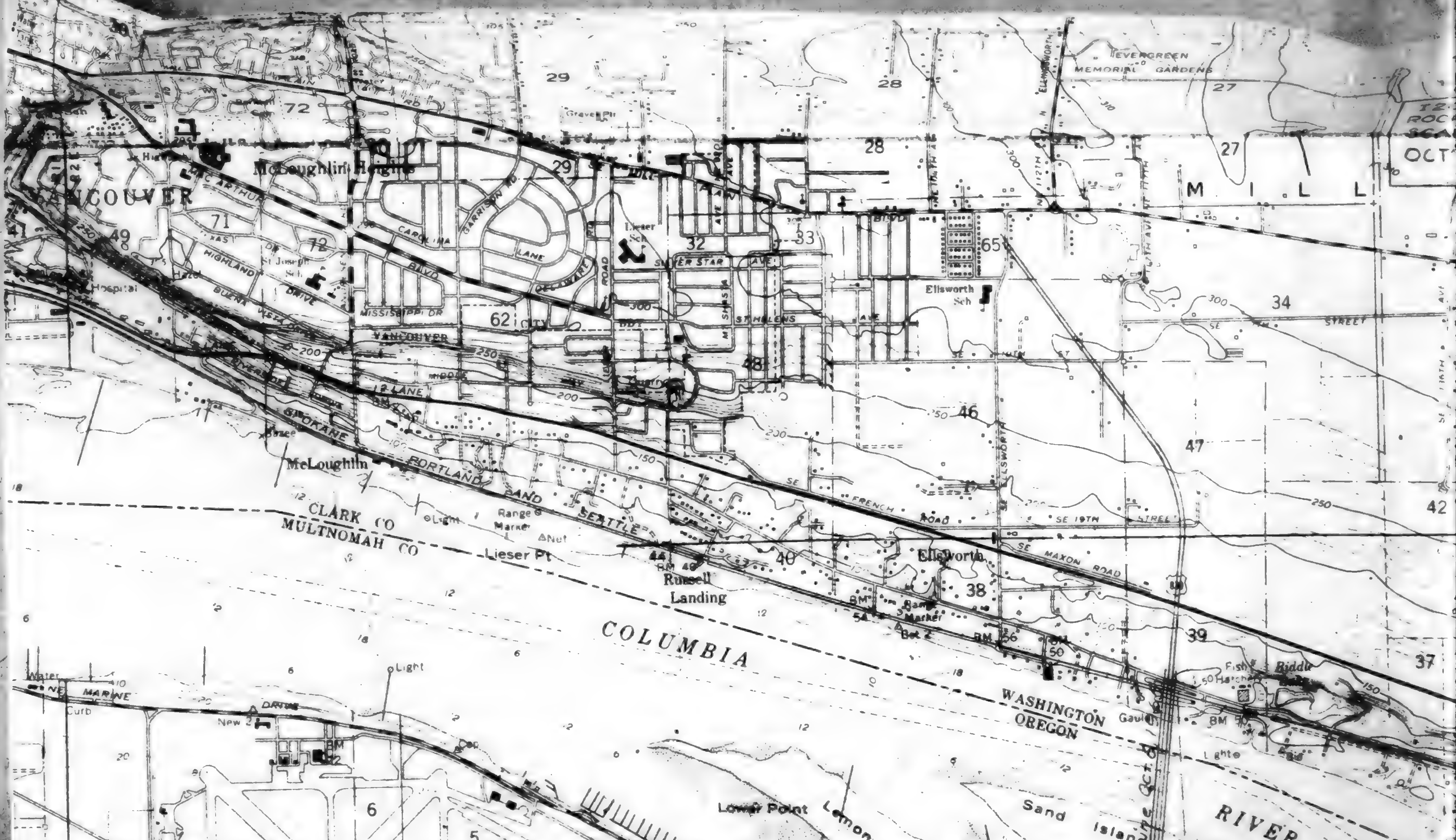
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McLoughlin Heights
McLoughlin
MC ARTHUR
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BUENA VISTA DRIVE
MISSISSIPPI DR
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GARRISON RD
CAROLINA
DELAWARE LANE
SILVER STAR AVE
MT SHASTA
ST HELENS
Lieser Sch
St Joseph Sch
Hospital
Ellsworth Sch
Ellsworth
Russell Landing
Lieser Pt
SPOKANE PORTLAND AND SEATTLE
SE FRENCH ROAD
SE 19TH STREET
SE MAXON ROAD
SE STREET
ELLSWORTH
EVERGREEN MEMORIAL GARDENS
Gravel Pit
M I L L
CLARK CO
MULTNOMAH CO
WASHINGTON
OREGON
COLUMBIA
RIVER
Lower Point
Lemon Island
Sand Island
SAND
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AIRPORT AVE
PORTLAND
INTERNATIONAL AIRPORT
Fish Hatchery
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Range Marker
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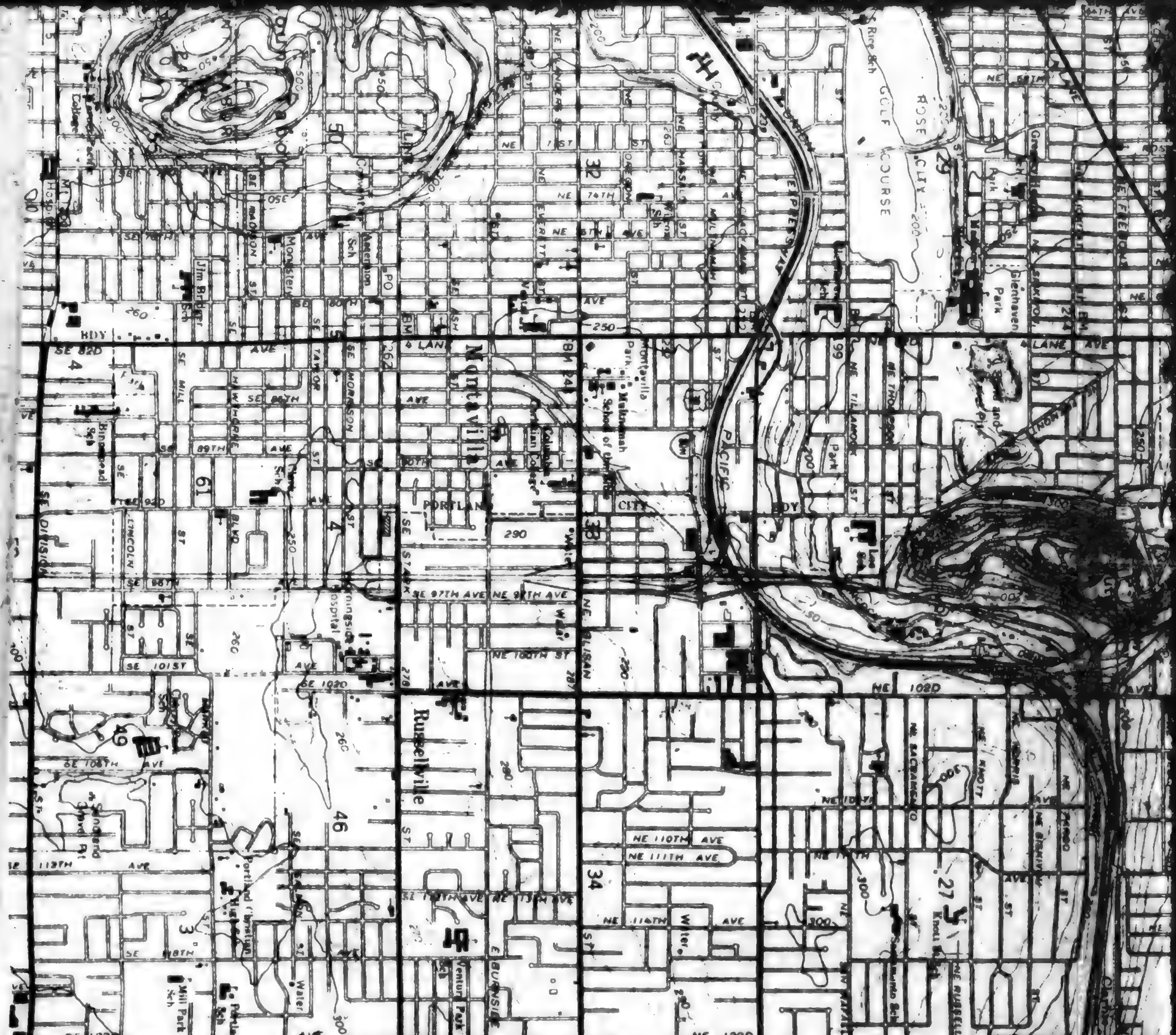
ROSE CITY GOLF COURSE
Rice Sch
Glenhaven Park
Montavilla
Portland
Multnomah School of the Bible
Columbia Christian College
PACIFIC
EXPRESSWAY
Jim Bridger Sch
Monastery
Ascension
Bingwood Sch
Russellville
Tabor Hospital
Portland Christian High Sch
Mill Park Sch
Ventura Park
E BURNSIDE
Powellhurst
SE DIVISION
Douglas High Sch
North Powellhurst Sch
County Health Division
US Forest Headquarters
NE GLISAN
GLENDOVEER GOLF COURSE
St Therese Sch
HALSEY
Sand and Gravel Pit
Parkrose Heights Jr High Sch
Knott
NE SACRAMENTO
NE RUSSELL
UNION
NE 102D
NE 122D
SE 122D
SE 82D
NE 148TH
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NE 162D AVE
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SE SALMON
SE MILL
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HAWTHORNE
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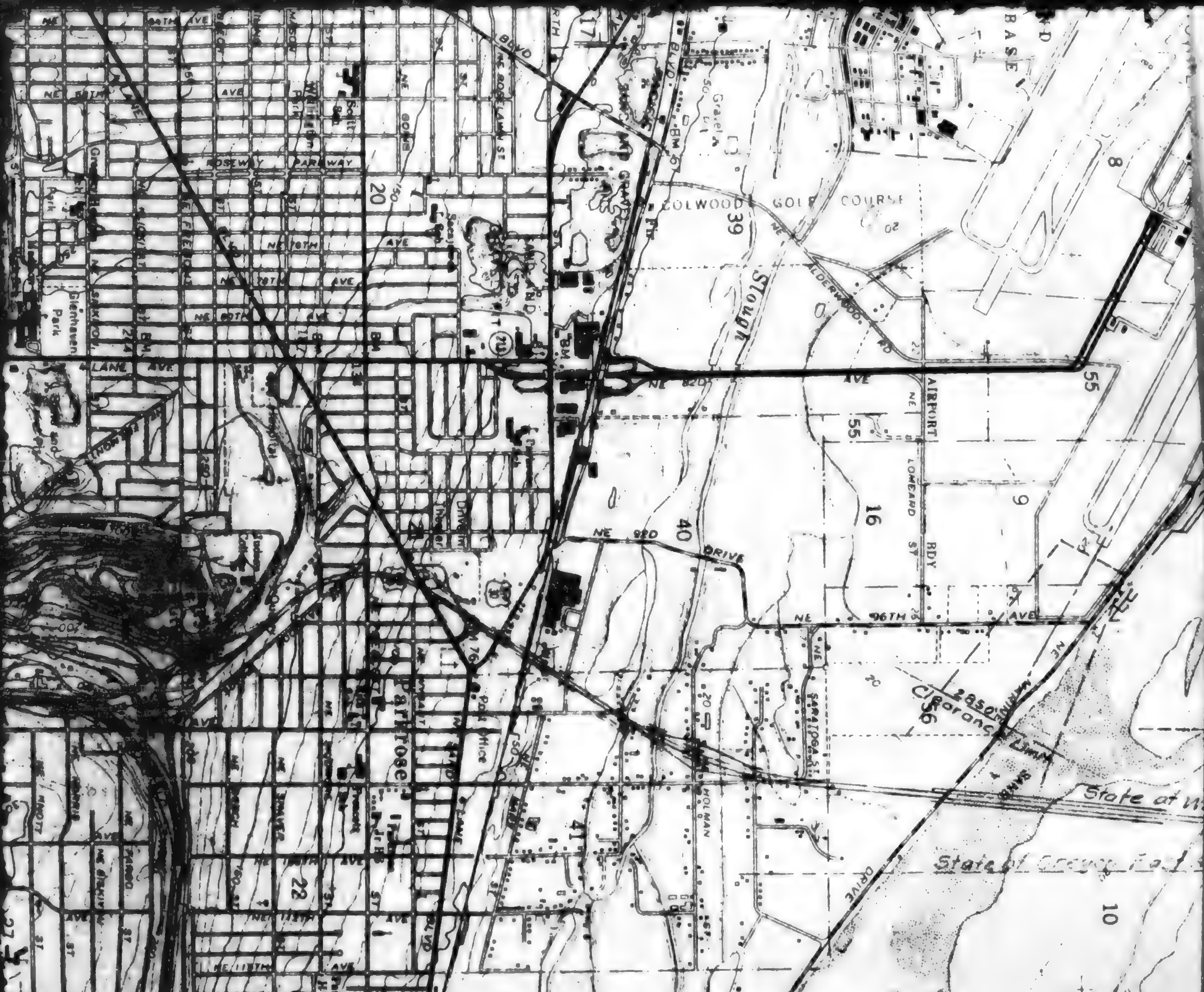
BASE
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COLWOOD GOLF COURSE
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Slough
ALDERWOOD RD
ROSEWAY PARKWAY
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AIRPORT
LOMBARD ST
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NE 92D DRIVE
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NE 96TH AVE
Clearance Limit
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State of Oregon
HOLMAN
Parkrose
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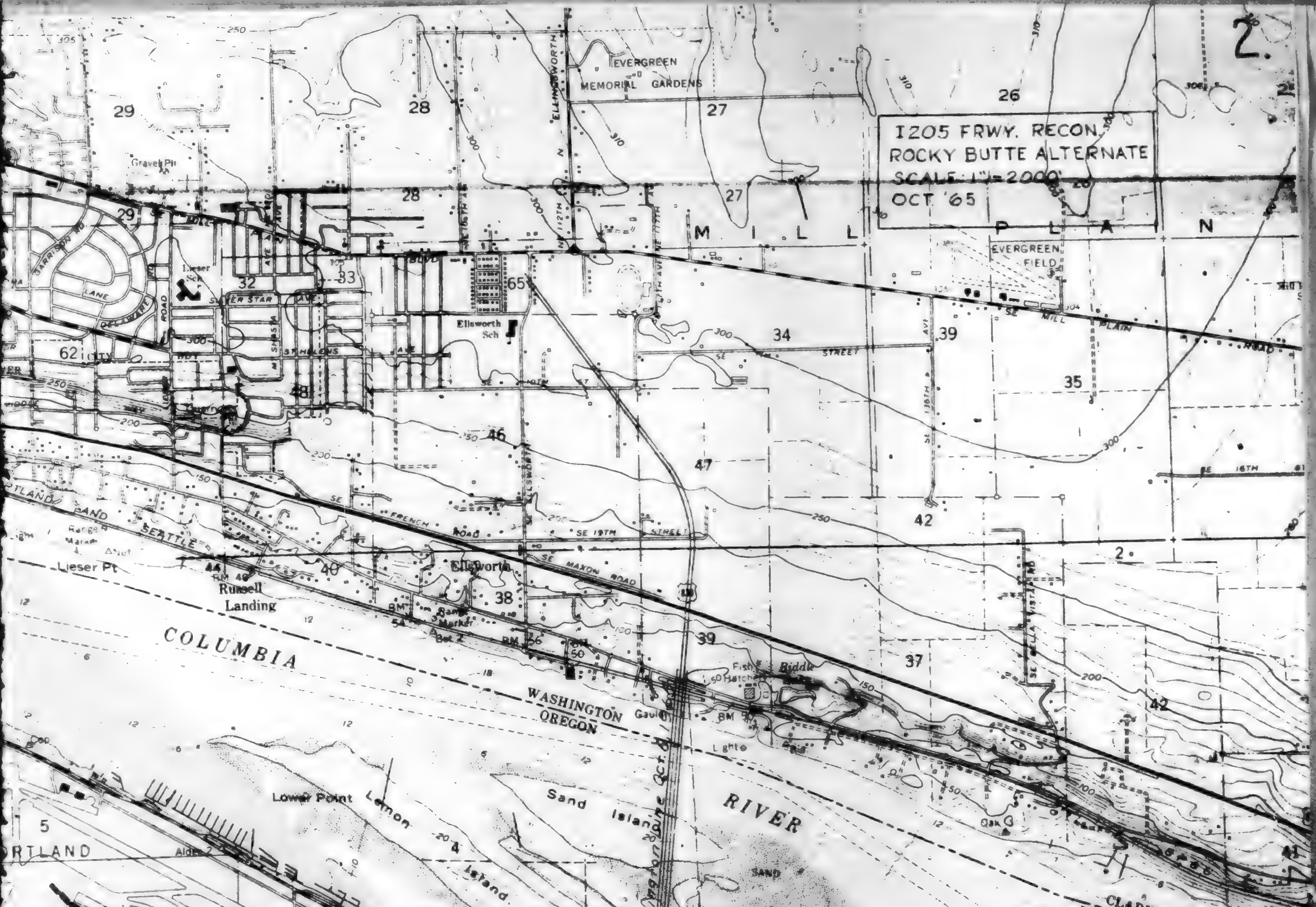

I205 FRWY. RECON.
ROCKY BUTTE ALTERNATE
SCALE: 1"=2000'
OCT '65

2.
EVERGREEN MEMORIAL GARDENS
ELLINGSWORTH
MILL PLAIN
EVERGREEN FIELD
Gravel Pit
GARRISON RD
DELAWARE LANE
SILVER STAR AVE
MT SHASTA
ST HELENS
Lieser Sch
Ellsworth Sch
SE MILL PLAIN ROAD
SE 136TH AVE
STREET
SE FRENCH ROAD
SE 19TH STREET
SE MAXON ROAD
SE ELLA VISTA RD
SE 16TH
Lieser Pt
Range Marker
Russell Landing
Ellsworth
SEATTLE
Range Marker
Fish Hatchery
Biddle
Gault
Lights
COLUMBIA
RIVER
WASHINGTON
OREGON
Lower Point
Lemon Island
Sand Island
SAND
CLARK CO
MULTNOMAH
PORTLAND
AIRPORT
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OCT 18 1965
FOR FILING
Local
RIH
Laurelhurst

October 15, 1965

Mr. R. A. Neumeister
Assistant General Manager
The Port of Portland
Post Office Box 3529
Portland, Oregon 97208

Dear Mr. Neumeister:

I have your letter of October 14 which is a follow-up of my recent telephone call from Dennis J. Lindsay, President of the Port of Portland.

In my discussion with Mr. Lindsay, he informed me that the Port had a plan for its version of a connection to the proposed route for I-205.

It would be more helpful to us if you would send us, even in rough detail, what your ideas are so that we may study and analyze the matter. I believe a meeting could be much more fruitful if we knew your thinking.

We will be pleased to explore this matter with you to see what can be worked out.

Very truly yours,

Forrest Cooper
State Highway Engineer

FC:fm

cc Mr. Dennis Lindsay
R. L. Porter
F. B. Klaboe
Victor D. Wolfe
L. W. Rulien

**Commissioners**
DENNIS J. LINDSAY
*President*
LEE E. CALDWELL
*Vice-President*
DONALD G. DRAKE
*Secretary*
ROBERT B. WILSON
*Treasurer*
HAROLD S. HIRSCH
ERLING E. JACOBSEN
RAYMOND M. KELL
LEW S. RUSSELL
HOWARD B. SOMERS

*General Manager*
GEORGE M. BALDWIN

*Ass't General Manager*
R. A. NEUMEISTER
*Mgr., Aviation Dept.*
J. V. FRYBERGER
*Mgr., Industrial Development Dept.*
L. E. ARNOLD, JR.
*Mgr., Marine Dept.*
A. J. HEINEMAN
*Comptroller*
E. W. BAUER
*Mgr., Research and Planning*
W. S. DIRKER
*Chief Engineer*
R. F. DOW
*Mgr., Public Information*
W. G. PROCTOR

In reply refer to:

Swan Island, P.O. Box 3529, Portland, Oregon 97208
Telephone 503-285-5271

October 14, 1965

Mr. Forrest Cooper
State Highway Engineer
Oregon State Highway Department
Salem, Oregon

Dear Mr. Cooper:

Reference is made to your recent conversation with Mr. Lindsay, the President of the Port of Portland Commission, concerning the extreme importance of a primary direct highway connection between Portland International Airport and the new I-205 Freeway.

This airport facility serves a large region including all of Oregon and the Southwest and Southeast portions of Washington. The growth of passenger and air cargo in recent years has been spectacular - exceeding the national average - and the projections for the future show a steady continuation of growth. It is an absolute necessity that this facility be served by the best possible freeway access for not only the traveling public and air cargo but also for the United States Air Force and the Oregon Air National Guard who jointly use Portland International.

To aid you in your consideration of this matter, please find copies of our earlier correspondence related to this subject. We would appreciate an early meeting with you and your staff to resolve this matter now that the basic location of this freeway has been tied down adjacent to the airport.

Sincerely,

THE PORT OF PORTLAND

R.A. Neumeister
R. A. NEUMEISTER
Assistant General Manager

RECEIVED
OCT 15 1965
OFFICE OF
STATE HIGHWAY ENGINEER

RAN:br
Attachments:
(1) Statement of Port of Portland Commission at I-205
Public Hearing, Dec. 11, 1964
(2) Ltr. to Mr. Cooper from Mr. Baldwin, Dec. 1, 1964
(c) Resume of Mtg., Port of Portland & Asst. Hwy. Engr. Nov. 25, 1964.

cc: Port of Portland Commission

December 11, 1964

Mr. Chairman - members of the Commission - and staff:

My name is George Baldwin, and I am the General Manager of The Port of Portland.

The Port of Portland Commission wishes to submit a written statement concerning the I-205 Freeway which I will leave with your secretary. I would like to summarize this statement as follows:

First; The Port feels very strongly that the I-205 Freeway is essential for the continued growth and progress of the Portland metropolitan area.

Second: The Port does not have decisive reasons for recommending a preference for either the east or west routes.

Third: The Port respectfully requests that a primary, direct connection be made between the Portland International Airport and the new freeway, whichever route is selected, for the following reasons:

1. Existing traffic and the extension of present growth patterns of traffic to and from Portland International Airport.
2. The importance to the entire state of Oregon and to Southern Washington of the Portland International Airport facilities.
3. The National defense aspects of the airport, particularly because of its use as a base for the U.S. Air Force and the Air National Guard.
4. The large investment of local taxpayer and Federal funds in the development of the airport facilities.

Thank you.

**Commissioners**
DONALD G. DRAKE
*President*
DENNIS J. LINDSAY
*Vice-President*
ERLING E. JACOBSEN
*Secretary*
HOWARD B. SOMERS
*Treasurer*
LEE E CALDWELL
HAROLD S. HIRSCH
RAYMOND M KELL
LEW S. RUSSELL
ROBERT B WILSON

*General Manager*
GEORGE M. BALDWIN

*Ass't General Manager*
R. A. NEUMEISTER
*Mgr., Aviation Dept.*
J. V. FRYBERGER
*Mgr., Industrial Development Dept.*
L. E ARNOLD, JR.
*Mgr., Marine Dept.*
A. J. HEINEMAN
*Comptroller*
E. W. BAUER
*Mgr., Properties Dept.*
C. H. COVER
*Mgr., Research Planning and Inf.*
W. S. DIRKER
*Chief Engineer*
R. F. DOW

THE PORT OF PORTLAND

Swan Island, P.O. Box 3529, Portland, Oregon 97208
Telephone 503-285-5271

In reply refer to:

December 1, 1964

Mr. Forrest Cooper, Highway Engineer
State Highway Department
State of Oregon
Salem 10, Oregon

Dear Mr. Cooper:

The Port of Portland wishes to advise you of its support of the development of the I-205 freeway, as a North-South bypass through the eastern part of the metropolitan area.

Of particular interest to the Port is ground access to the Portland International Airport. This airport serves a large region, including the entire State of Oregon and Southern Washington. Growth of air passenger and air cargo traffic has been spectacular, and is projected to be even greater in the future. It seems clear this element will grow at an even more vigorous rate than the rest of the metropolitan region. Considering that the advantages gained by passengers and cargo from air transportation can be lost by an inefficient ground transportation network at the terminal cities, we feel the highest priority should be given to solving this problem and so to protect the public investment in air terminals, aircraft and airways. The Portland Air Force Base is also located at the Port's International Airport, and these defense considerations add support to our request that the best possible access be provided between the airport and either the East or West alignment of I-205.

The Port has certain statutory responsibilities which charge it with a broad interest in the economic welfare of the region. An adequate ground transportation system is certainly the framework upon which any economic region thrives. The freeway route through the eastern part of the area will make a major contribution to our economic vitality. Trucks, employees, customers and businessmen will all be served by such a freeway. This development will permit better use of the existing streets and will avoid the certain congestion and blight which follows lack of adequate transportation systems. This, in turn, will have its effect upon the tax base of the community and upon the efficiency of the economic activities within the area.

Mr. Forrest Cooper, Highway Engineer
December 1, 1964
Page 2

We have reviewed the suggested East and West alignments of I-205, but do not feel it within our competence to recommend one or the other. The Port, however, is involved in certain direct activities which are clearly affected by this freeway. The Port is developing the Swan Island Industrial Park, which will ultimately contain about 10,000 employees. Full development of the Port's Rivergate Industrial District in the North Portland area could accommodate 10,000 to 15,000 employees. The rapid, safe and efficient movement of these people, and the vehicular traffic associated with their industries, is critical to the growth of the area.

Thank you very much for your consideration of our views.

Very truly yours,

THE PORT OF PORTLAND

GEORGE M. BALDWIN,
General Manager

THE PORT OF PORTLAND
SWAN ISLAND
PORTLAND, OREGON

November 25, 1964

TO: G. M. Baldwin

FROM: R. F. Dow

SUBJECT: Meeting with Oregon State Highway Department
Assistant State Highway Engineer

On November 19, 1964, Messrs. Neumeister, Fryberger, Dirker and Dow met with Lloyd P. Shaw (assistant State Highway Engineer) and D. J. Barbee (assistant Construction Engineer) in Salem to discuss the recent Port study pertaining to highway facilities and access to the Portland International Airport and the Rivergate Industrial District.

Mr. Neumeister explained the Port's interest in the best possible highway access to the Portland International Airport, expecially in regards to planning for a high capacity access from either I-205 East or West to accommodate the increased traffic which is actually increasing nearly 20% per year. This rate is expected to continue to increase in the foreseeable future. The Metropolitan Transportation Study indicated that from 1960 to 1980 the area daily traffic loads will increase about 1.7 times. In this period, the traffic flow for PIA terminal building will increase 2.5 times or half again as much as the area as a whole. Air passengers will increase from 900,000 in 1960 to 2,200,000 in 1980. Experience through 1964 justifies this projection. Traffic will increase from approximately 5,000,000 to 12,000,000 person trips per year to and from the terminal building.

I-205 West was considered first and Mr. Barbee stated that any connection to the airport would have to be on existing roads. Marine Drive, Columbia Blvd., and Killingsworth were all discussed. We were informed that Columbia Blvd. is a county road in this area and probably could not be improved by the State. Lombard and Killingsworth are designated as US 30 by-pass and could possibly serve as the connection between I-205 West and existing 82nd to the airport. Lombard's substandard connection to 82nd was also discussed. The inadequacy of Marine Drive for this access was discussed and Mr. Neumeister said that if I-205 West is constructed that the Port would prefer its access to be located on the South side of the airport, as this is the most direct route for most of the traffic.

Mr. Shaw stated that 82nd, north of Columbia is FAS 727 and is a county road. Some discussion followed centering around its connection with Columbia Blvd. farm accesses, and the grade crossing at Lombard, which were all felt to make it substandard, and would not allow it to handle the expected loads.

I-205 East was considered next. Mr. Adrian Olson (urban engineer) brought in an aerial mosaic dated 1964 which we noted did not include the Lombard extension.

He later found a small scale aerial which did show this road. Mr. Shaw outlined the following route to the airport from I-205 East: West on Marine Drive to the Lombard extension then to 82nd and to Airport Way. Mr. Dirker commented that a straight extension of Airport Way would intersect I-205 East (which is shown to about bisect the Pierce property) near the South line of the Pierce property. Mr. Neumeister noted that most of this Airport Way extension would be on present Port property and would be the best airport access route. Mr. Barbee said this was certainly something they would consider.

The possible re-routing of the traffic from Marine Drive, between I-205 East and West locations, to the vicinity of Columbia Blvd. was discussed very lightly.

Mr. Neumeister said that the Port was very interested in having the I-205 constructed but did not have any specific location preference. Our interest was mainly in obtaining a short high capacity connection between the terminal building and the freeway to both the North and South so that the travel time to the passengers origin and destination could be kept as short as possible. The peak hour capacity is not felt to be the critical factor in the trafficway support of the airport. The most important consideration is the ease, convenience, and time distance of the trip for the passengers between their home or office and the airport when it is considered as a component of a long (several thousand mile) complete trip to a distant point. The Port and the Oregon State Highway Department have the opportunity to reduce the frequency of the often repeated complaint of air travelers, "It takes longer to get to and from the airport than it does between cities by aircraft." The time to eliminate this problem is now when freeways and expressways in the airport area are in the planning stages.

Mr. Shaw suggested that we present our thinking at the I-205 public hearing and it was agreed that the Port would submit a statement for the record.

The possible advantages to the Federal government in a high quality primary access from the freeway to the airport and air base from a national defense standpoint was mentioned as a strong asset in obtaining Bureau of Public Roads approval for this primary connection. The fact that the Federal Aviation Agency had a financial interest in Portland International Airport was mentioned as another Federal factor in favor of a primary freeway-airport connection.

Mr. Neumeister brought up the below standard access to the freeway provided for the traffic from the airport to the city center at the intersection of 82nd and the Banfield freeway. Mr. Sahw said that this had again been brought to their attention after a recent near miss and that they are now taking a good look at this problem area.

Mr. Neumeister than told about the Port's plans for the Rivergate Industrial District which will consist of about 1200 acres and may have about 10,000 workers at total development. In addition there may be another 2000 acres of land developed for industry by both public and private interests which may provide employment for up to 15,000 workers. Traffic by both the industrial and recreational programs proposed for the total Peninsula area will severely overload the existing trafficway system serving the area.

He stated that the large base industry (steel, chemical, or other) that was needed to get the district rolling required good highway access to the Minnesota freeway and the Bedroom Area of Washington County. He emphasized that a Columbia Blvd. vicinity expressway connection to the freeway had top priority in the Port's planning and that it will be needed before Rivergate can be developed as it should.

Mr. Shaw mentioned that an expensive 3-mile tunnel would be required to provide a first rate road through the west hills. A shorter tunnel (1 mile) was mentioned as an alternate but either seemed to be some distance in the future even though this road had been discussed in the near past.

In regard to the Columbia Blvd. connection, Mr. Shaw said that Columbia Blvd. was a county road within the city limits in this area and he understood that Multnomah County was hesitant to improve such roads. Mr. Neumeister mentioned that he remembered the county and city trading some roads and thought this was one. (We have been informed by the Multnomah County Road Department that Columbia Blvd. is a city street where it is located within the city limits, west of 42nd, and a county road where it is outside of the city limits, east of 42nd.)

Mr. Shaw asked how flexible the Port was in the location of this route asking if it could be connected to the Union-Marine Drive intersection with the freeway. He said this had a better interchange with the freeway than Columbia. Mr. Barbee said the Denver Interstate interchange could handle a large increase in traffic but he was not sure that it could take a 5 or 6-fold volume.

Mr. Dirker brought out another map which showed this route as a possible future connection which would probably be needed before the whole Rivergate area is developed. It was mentioned that this route would provide a good access to Washington whereas Columbia Blvd. would provide a shorter route to thecity center

Mr. Shaw said they would give this area a reconnaissance survey, review it, and keep it in their minds, and let us know the results of their thinking as soon as possible, within their staff and time limitations.

Dow
RFD/mb

cc: Mr. Shaw (3)
Mr. Neumeister
Mr. Dirker
Mr. Arnold

8905

8

RECEIVED
OCT 15 1965
FOR FILING

**OREGON STATE HIGHWAY DEPARTMENT**

INTER-DEPARTMENT CORRESPONDENCE

Salem, Oregon
October 13, 1965

SUBJECT:

To: MEMO TO FILE

On this date, Dennis Lindsey of the Port of Portland called me in connection with a matter involving access to the Portland Airport from the projected I-205 route.

Mr. Lindsey discussed the matter in some detail, explaining some of the future plans of the Port of Portland, and inquired as to "how to get started on the matter of access". He stated that they had some preliminary ideas, which I suggested he send to me for analysis.

Forrest Cooper
Forrest Cooper
State Highway Engineer

FC:fn

cc R. L. Porter
F. B. Klaboe
Victor D. Wolfe

8905

RECEIVED
OCT 12 1965
FOR FILING

October 12, 1965

Mr. S. D. Eason, P. E.
District Engineer
Washington State Highway Commission
Department of Highways
4200 Main Street
Vancouver, Washington

Attention: Mr. E. E. Nielsen

Dear Sir:

Reference is made to your letter of October 6 in regard to a proposed Interstate 205 Columbia River crossing.

Enclosed is a print of a blown-up quadrangle sheet on which we have shown your suggested line and our possible revision. This would presumably require a curve on your side of the main span, possibly as shown; however, your routing to the north could be used relatively unchanged.

Very truly yours,

Forrest Cooper
State Highway Engineer

By

F. B. Klaboe
Assistant State Highway Engineer

Enclosure

cc: Mr. Forrest Cooper
Mr. R. L. Porter
Mr. F. D. Morgan

STATE OF WASHINGTON
DANIEL J. EVANS, GOVERNOR

WASHINGTON
STATE HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS
OFFICE OF DISTRICT ENGINEER
4200 MAIN STREET
VANCOUVER, WASHINGTON

Routing
Morgan
Docker
Bond
1 Barbee
Walker
Glenn
Swan
Pease E
Morelock
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Scott
Wills
Litchfield
Olson

RECEIVED
OCT 7 1965
CONSTRUCTION
DIVISION

October 6, 1965

Mr. Forest Cooper,
Highway Engineer
Highway Building
Salem, Oregon

Attention: Mr. D. J. Barbee

Dear Sir:

PSH #1 (I-205) L-2096
Columbia River to Jct. PSH #1

On September 14, 1965, Mr. J. W. Harris and I met with you and Mr. Olson in your office to determine how far to the west a crossing of the Columbia River could be made without interfering with the Portland Airport.

We were at that time considering a route to the west of the State fish hatchery, as shown on the attached quadrangle print, and we were assured that such a route would pose no insurmountable problems in your State.

Further studies have shown that this route will cost considerably less than the more easterly route, and because of its shorter length, a considerable saving in user costs can be realized. Before making a final choice of routes, our headquarters office would appreciate a letter from your department stating your concurrence in this more westerly crossing.

Since time is running short, your early reply will be very much appreciated.

Very truly yours,

S. D. EASON, P.E.
District Engineer

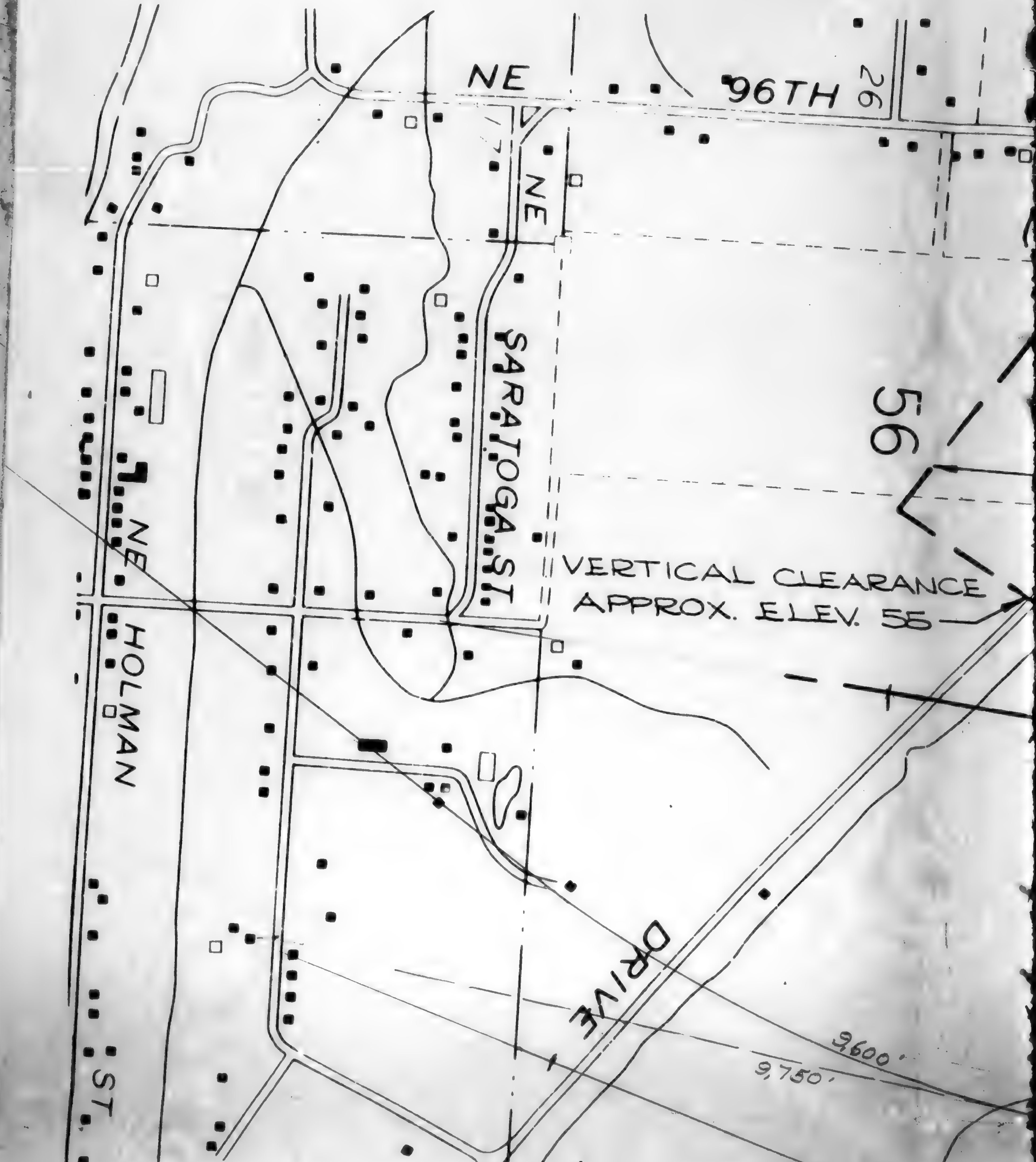
E. E. Nielson
By: E. E. Nielson, P.E.
District Location Engineer

SDE:ncl
EEN
cc: Mr. C. G. Prahl

Attch.

RECEIVED
OCT 7 1965
OFFICE OF
STATE HIGHWAY ENGINEER

RECEIVED
OCT 7 1965
OREGON
STATE HIGHWAY COMMISSION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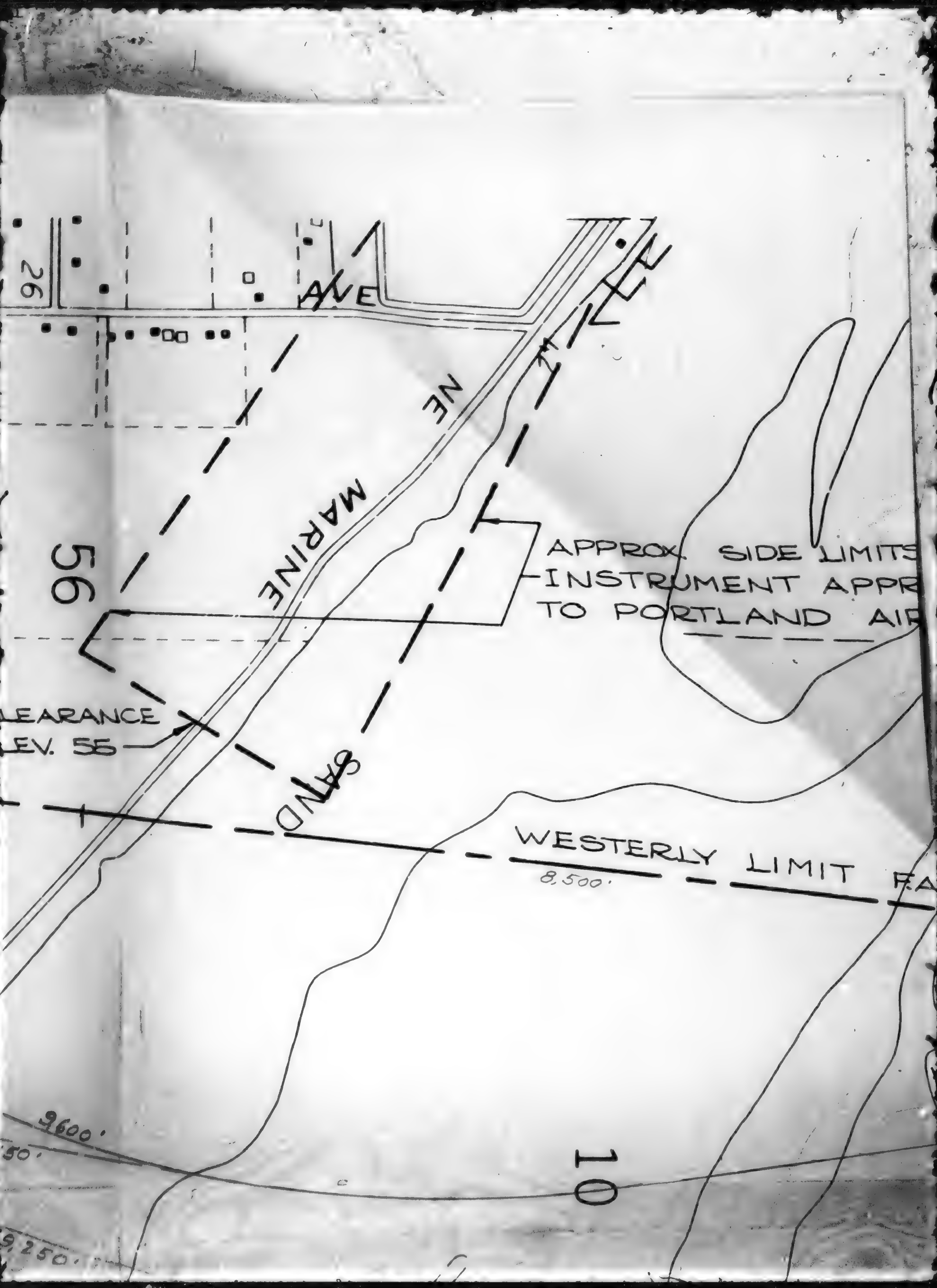
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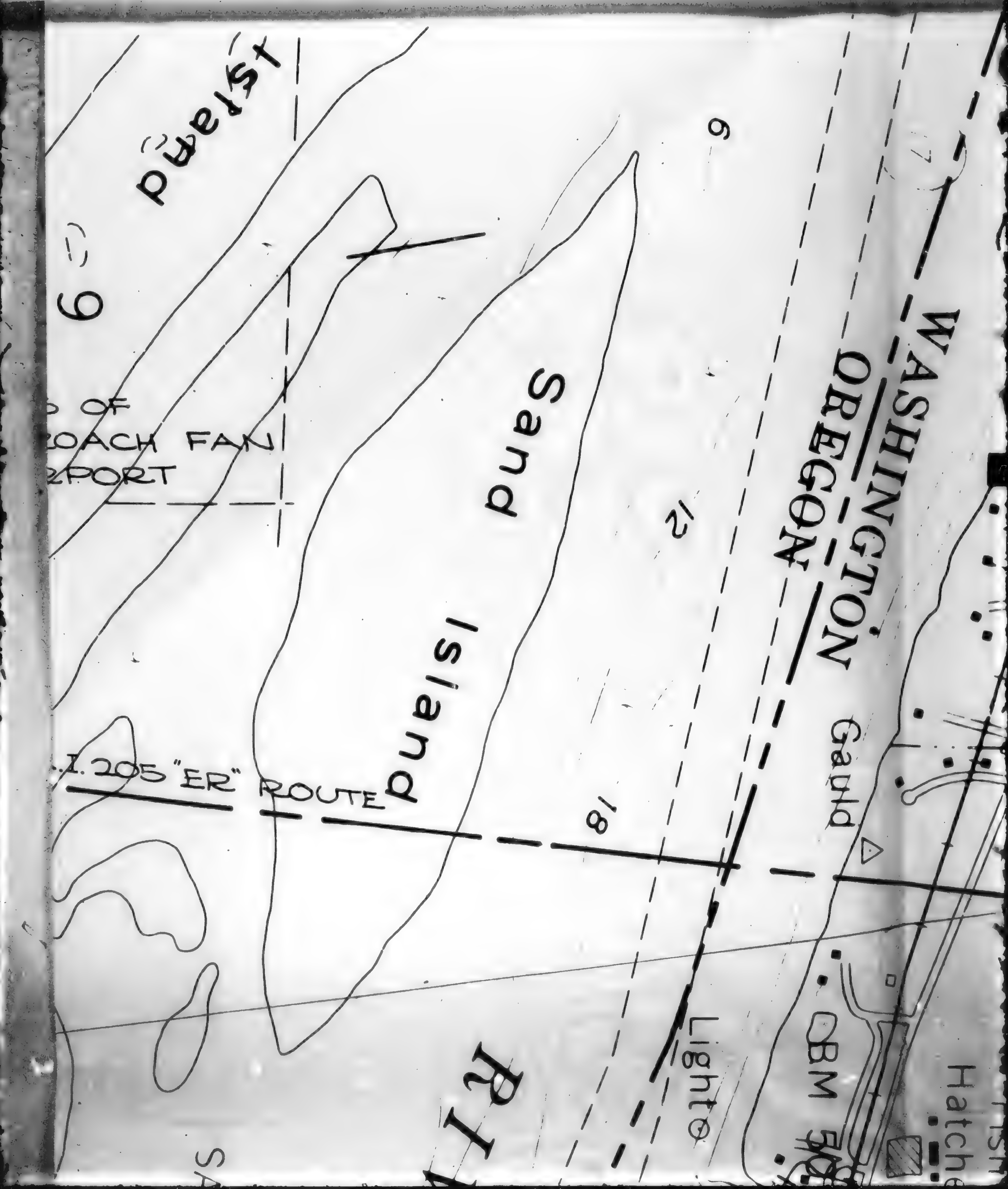
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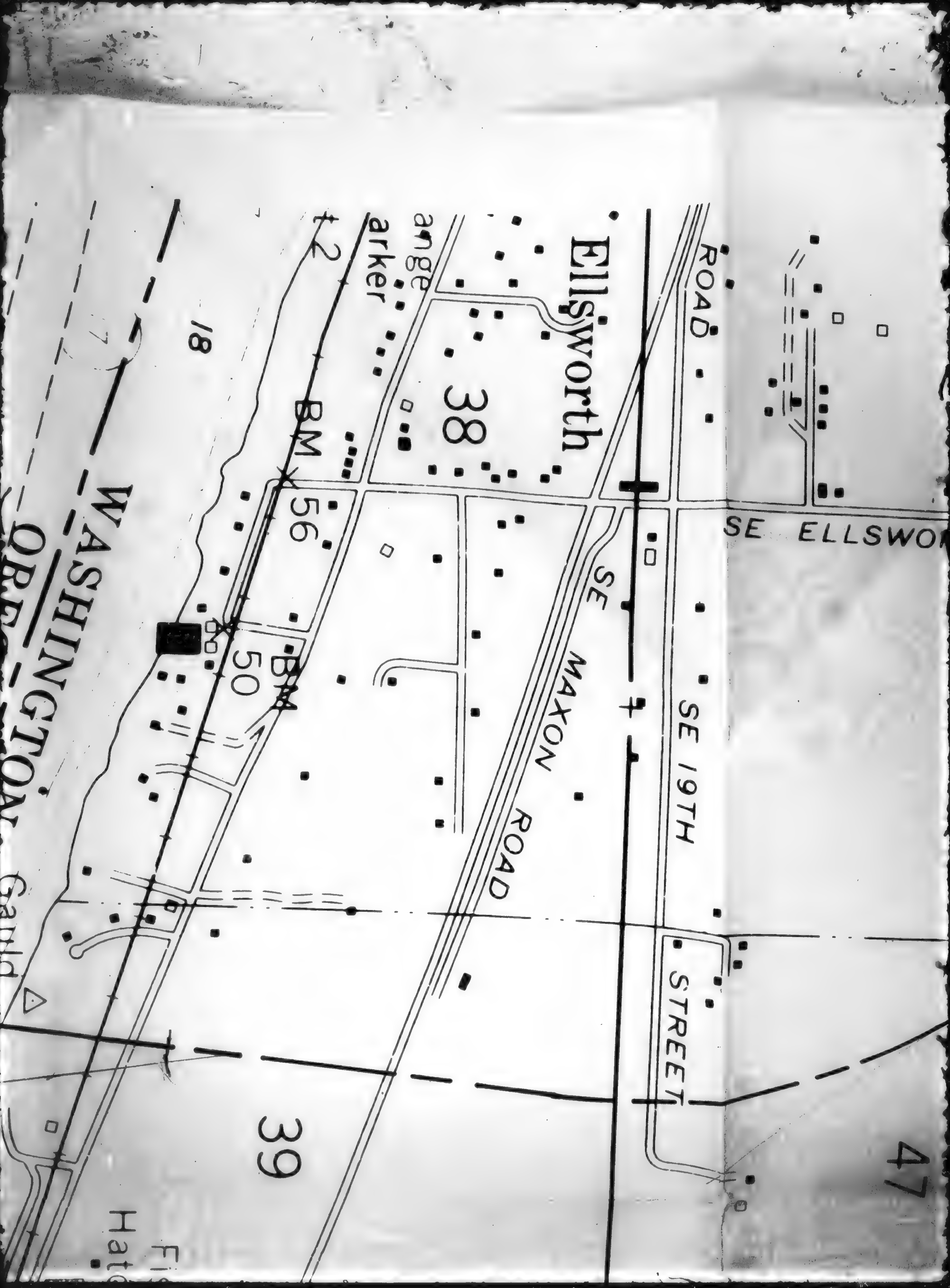Ellsworth
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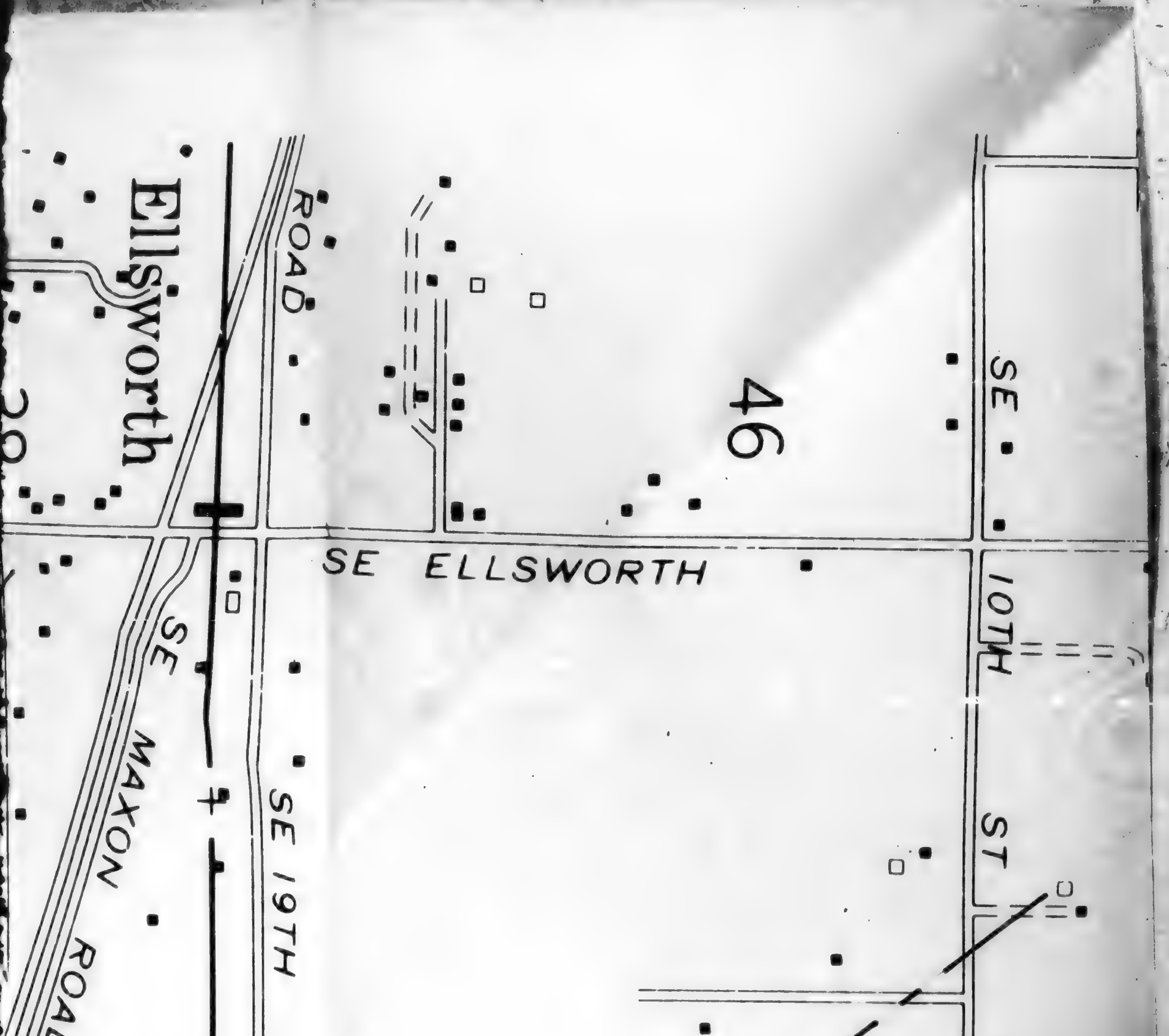
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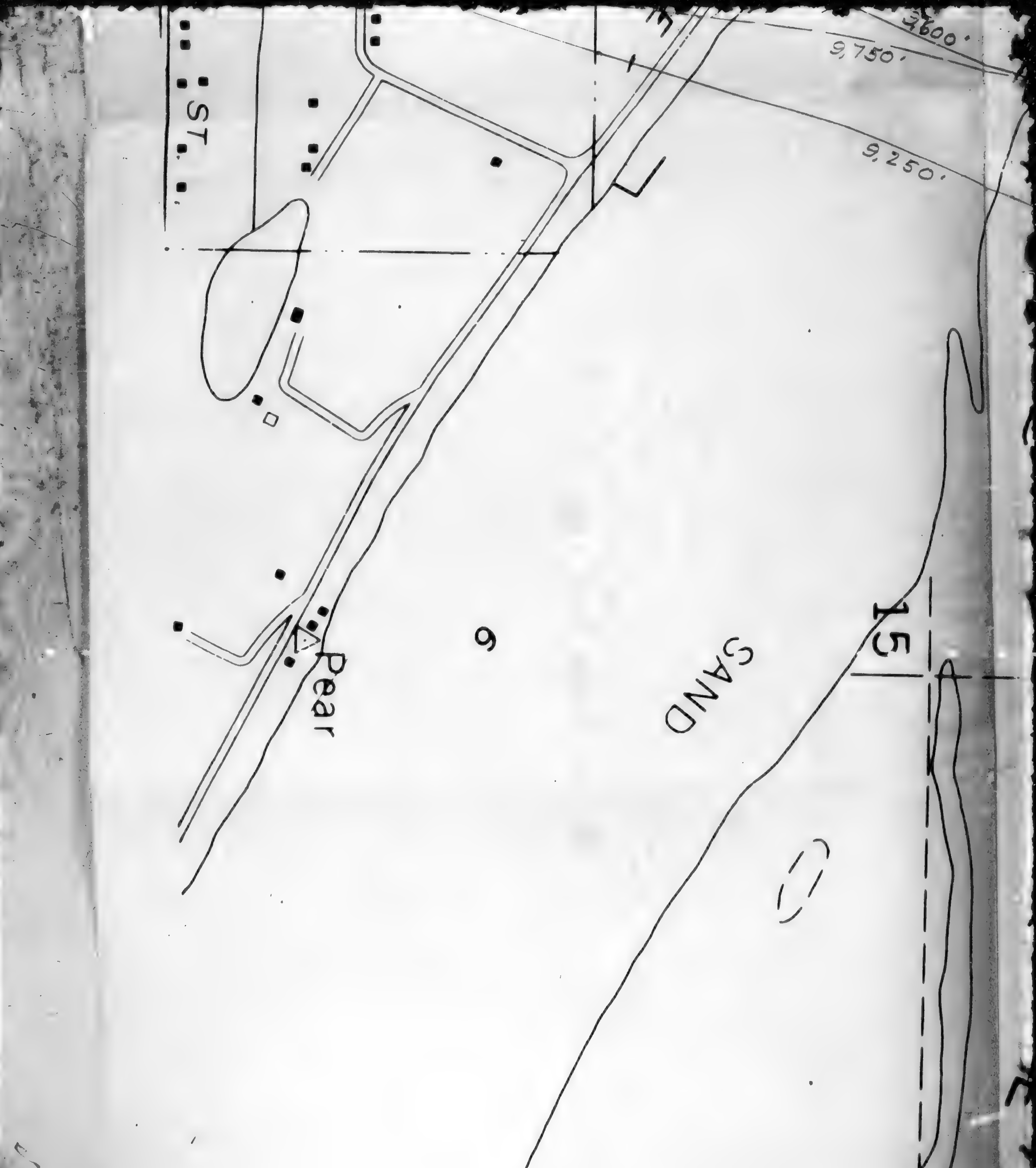
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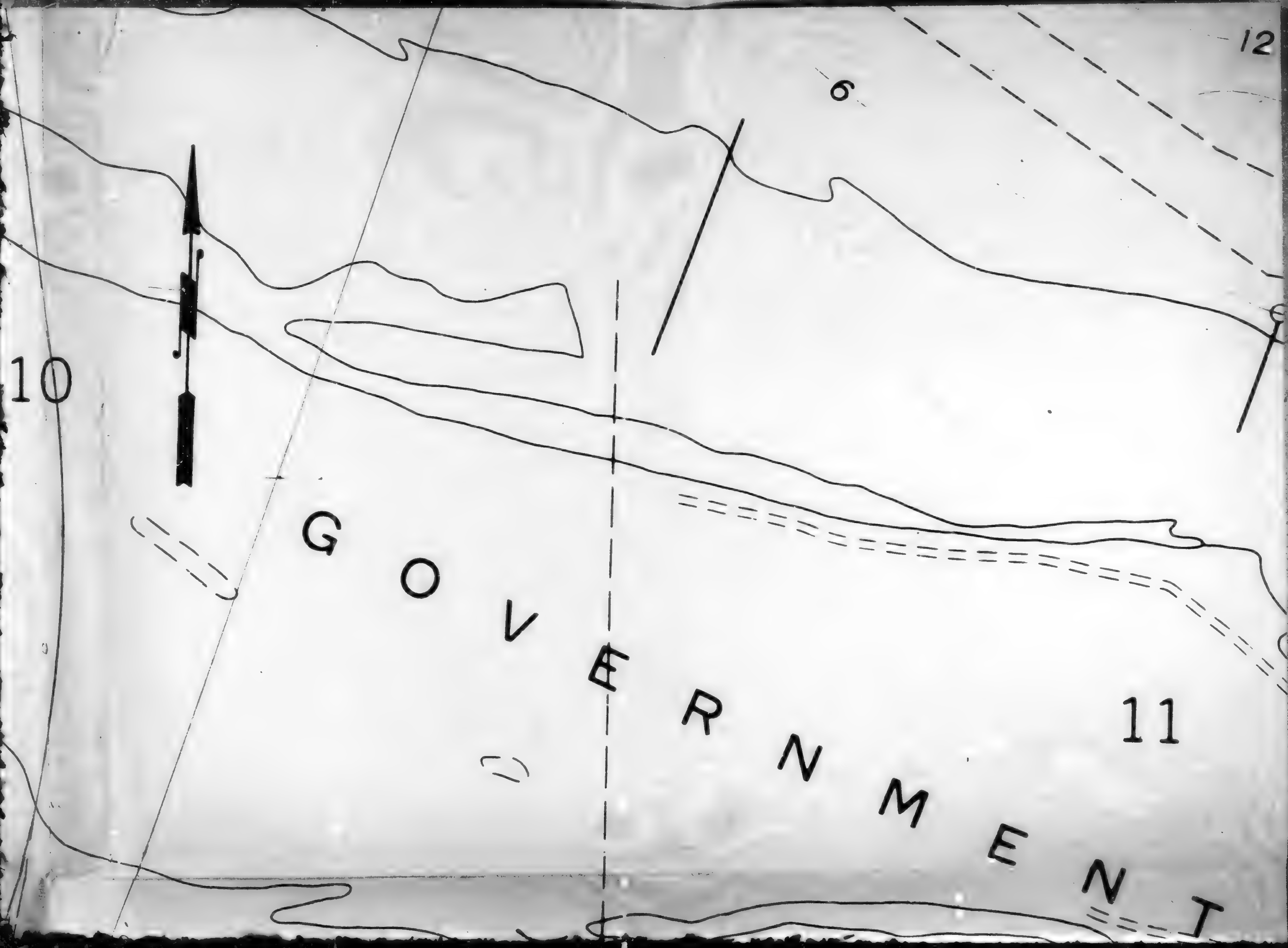
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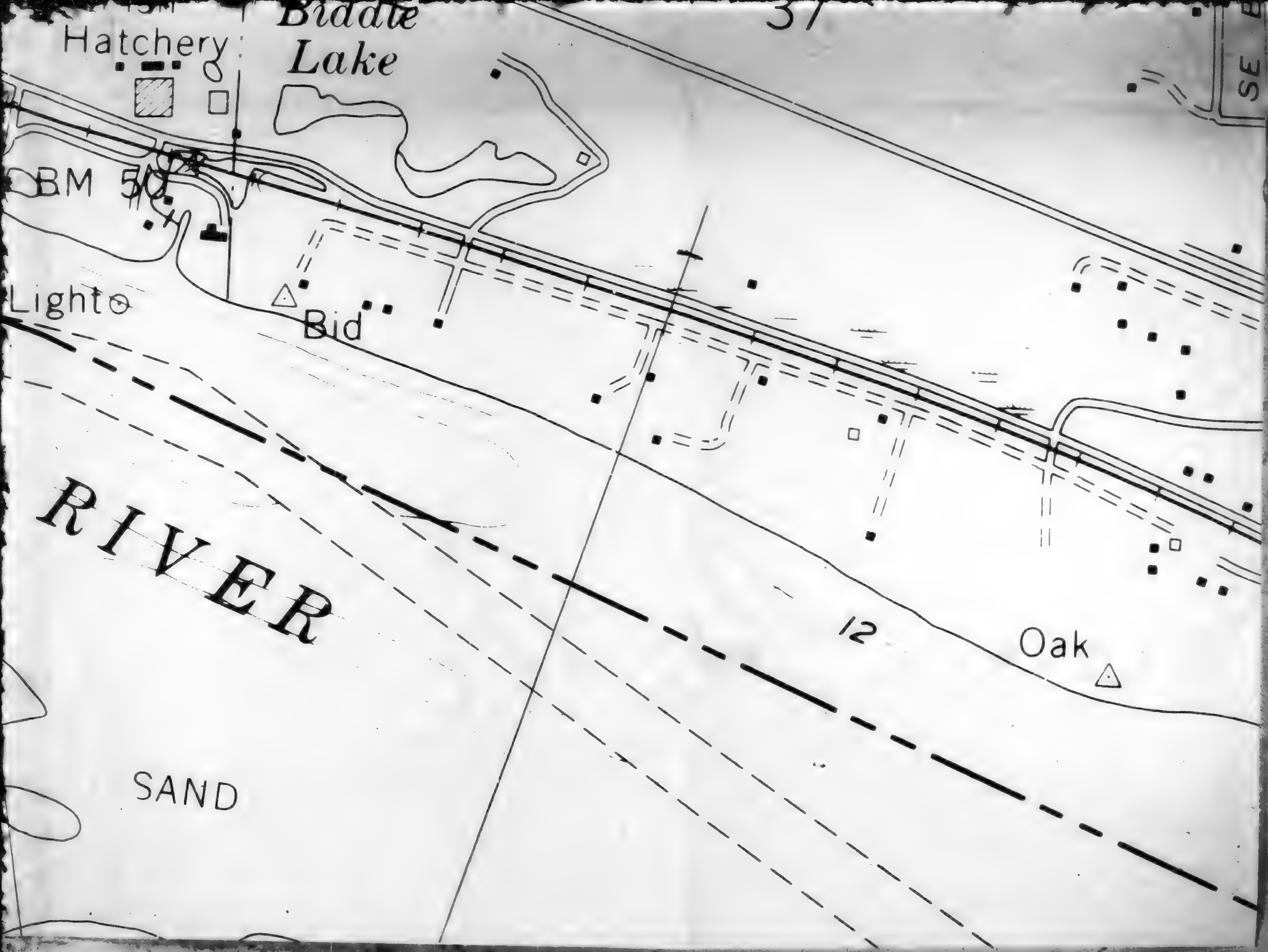
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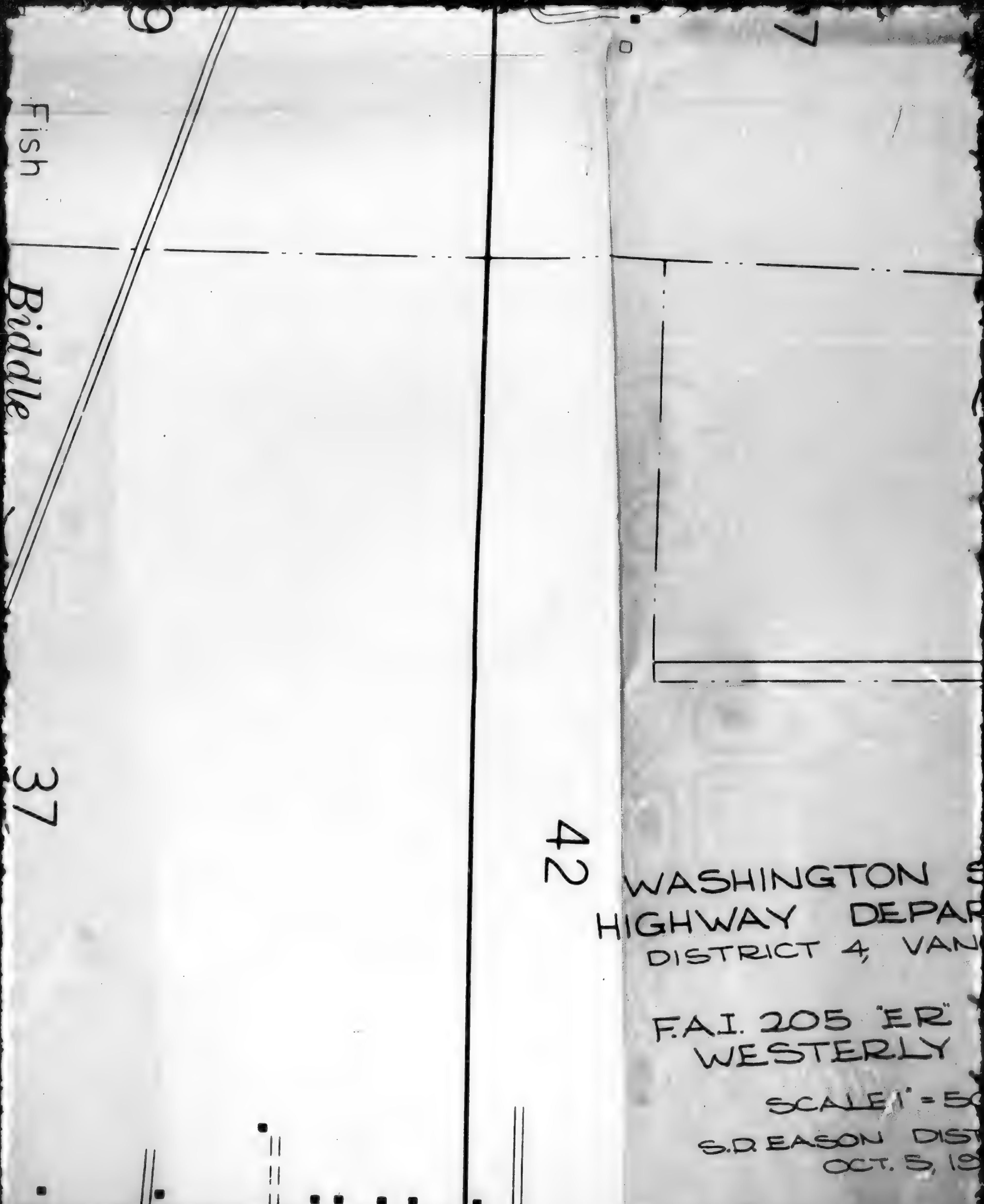
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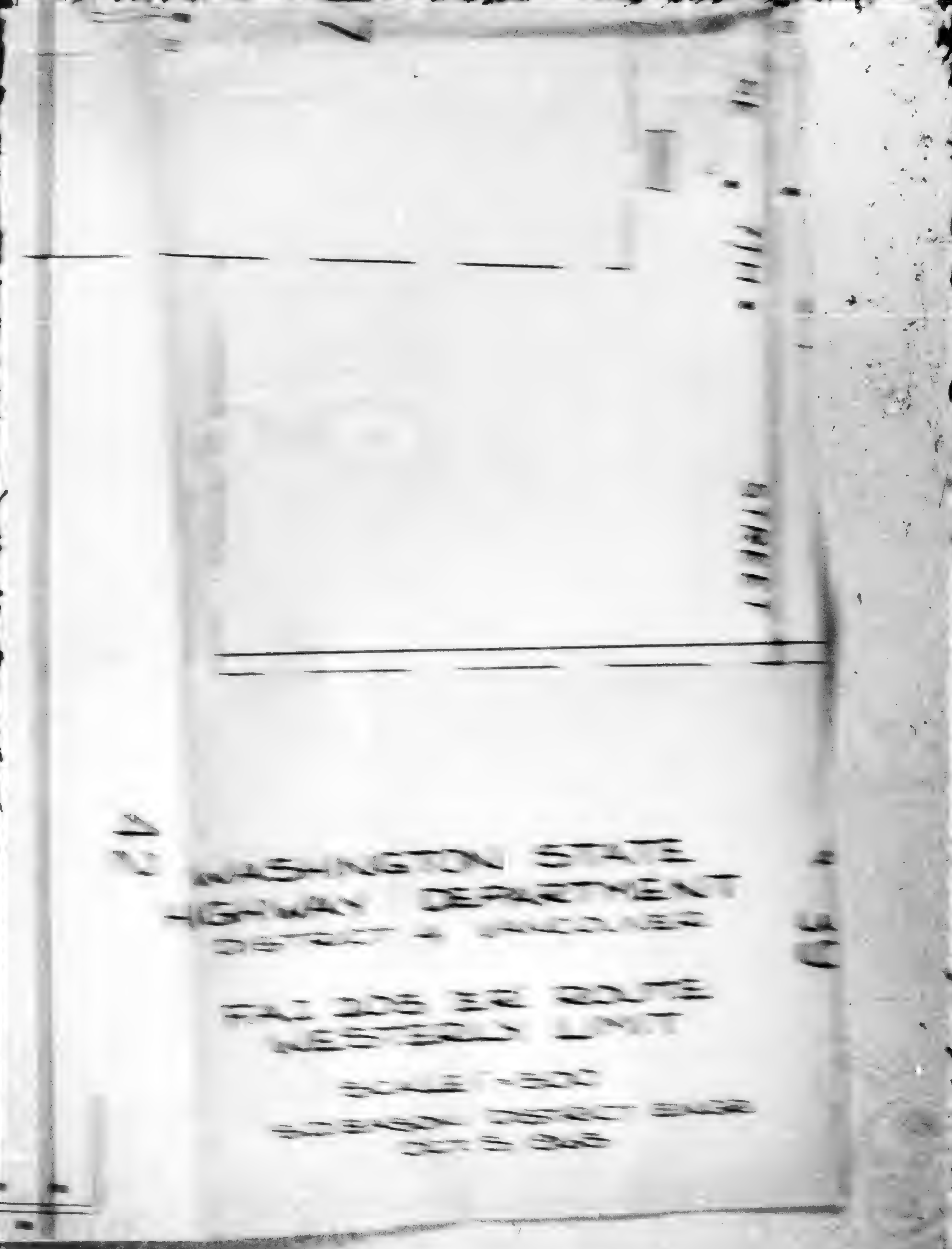
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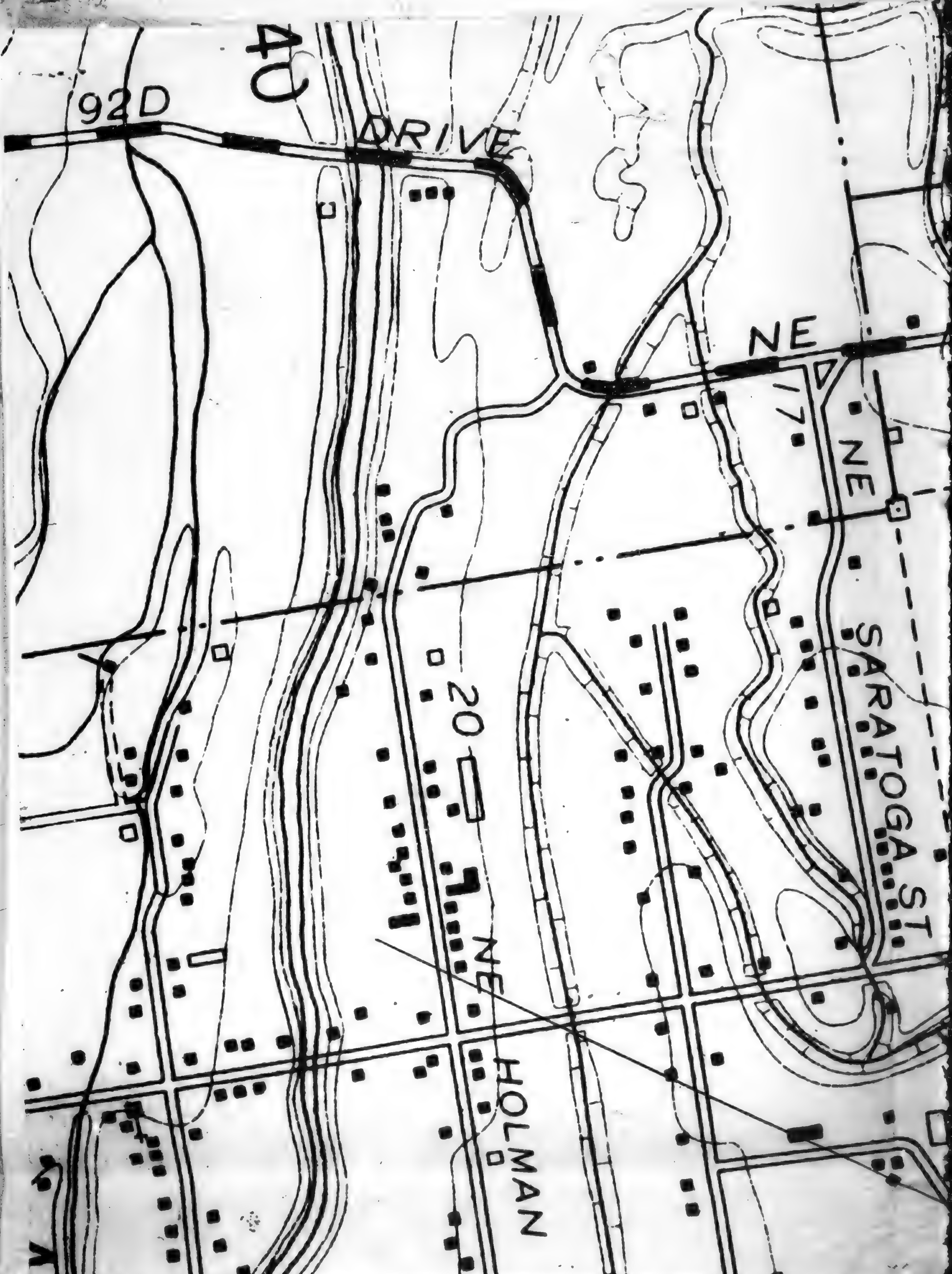
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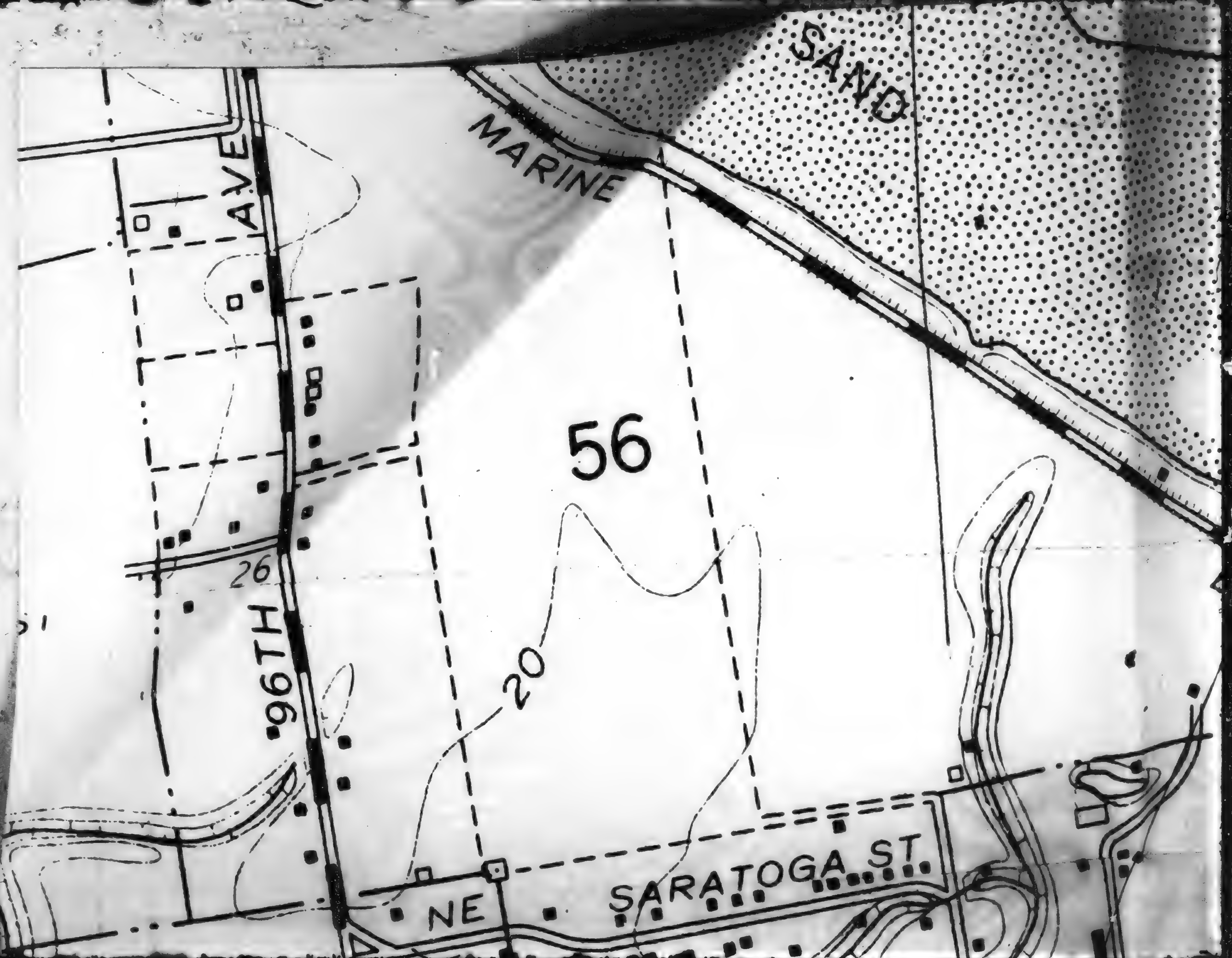
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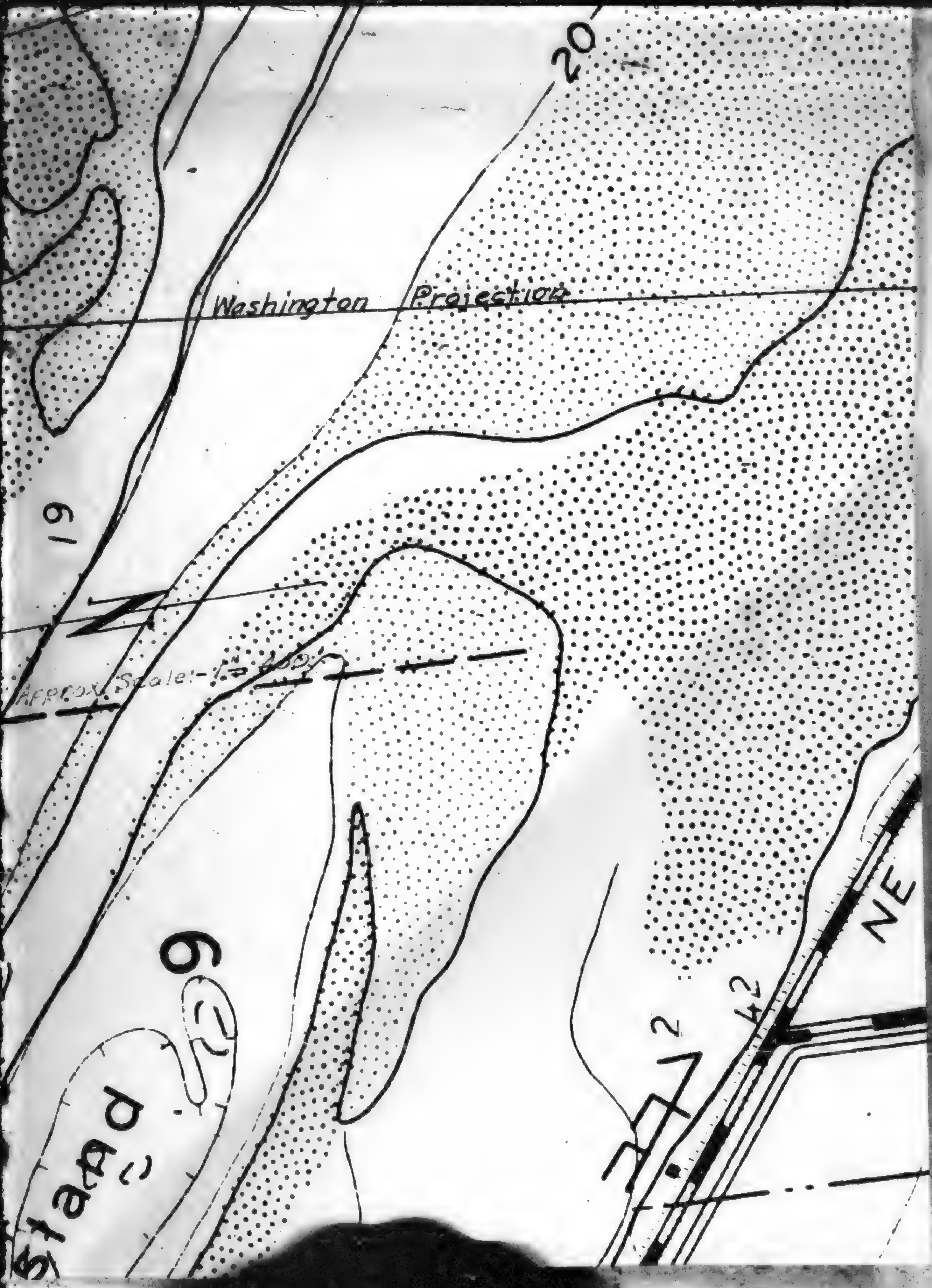
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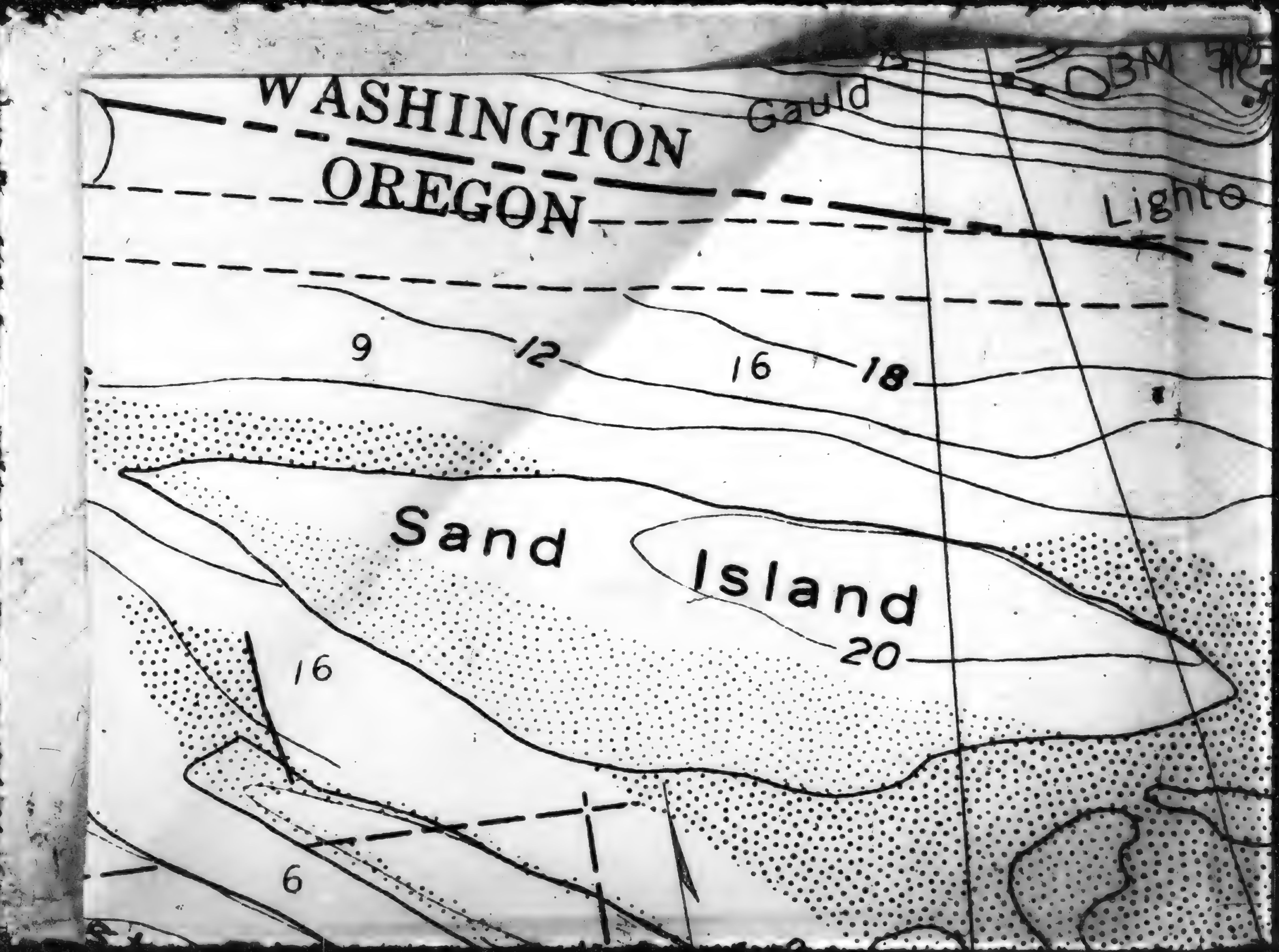
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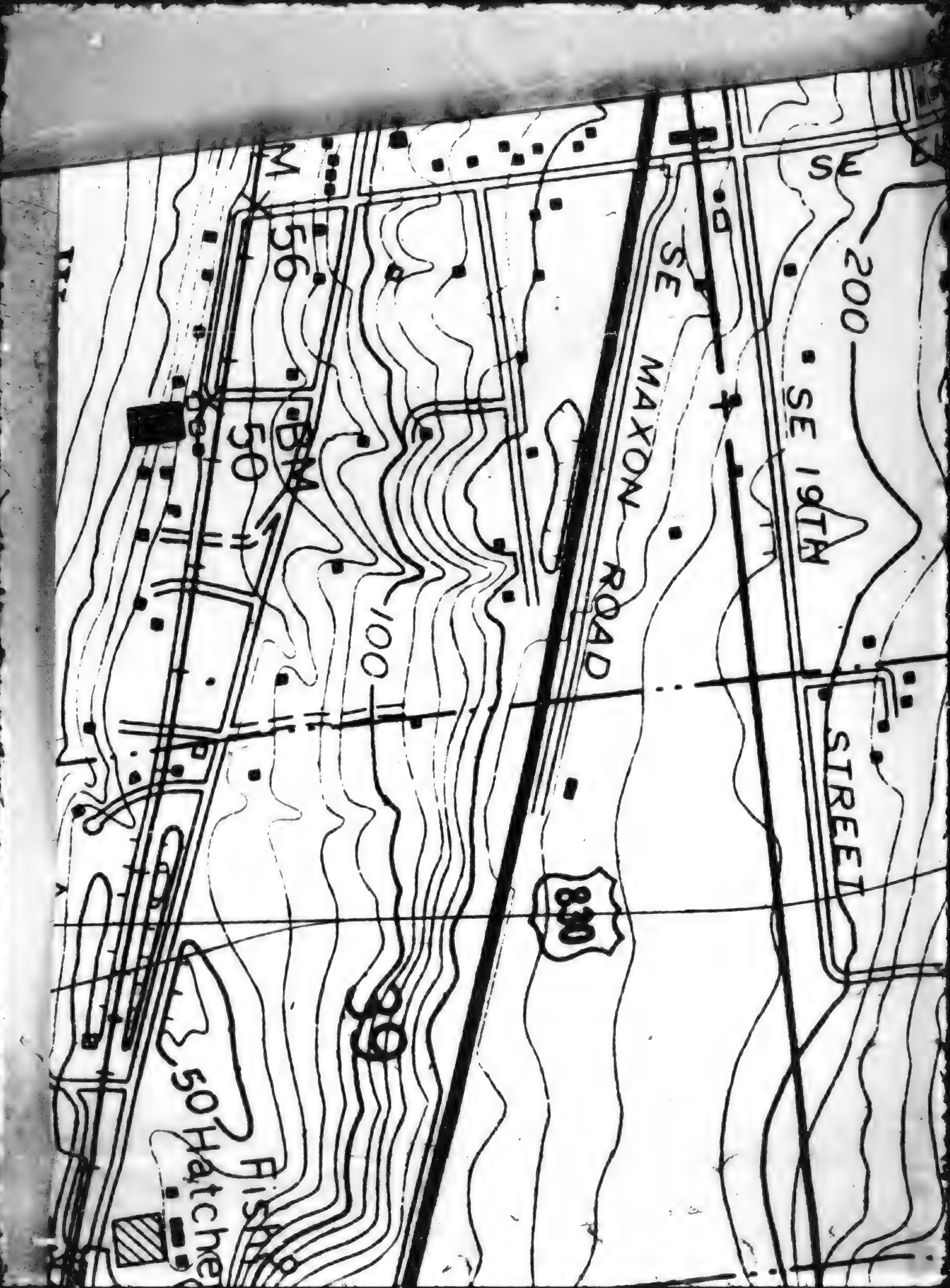
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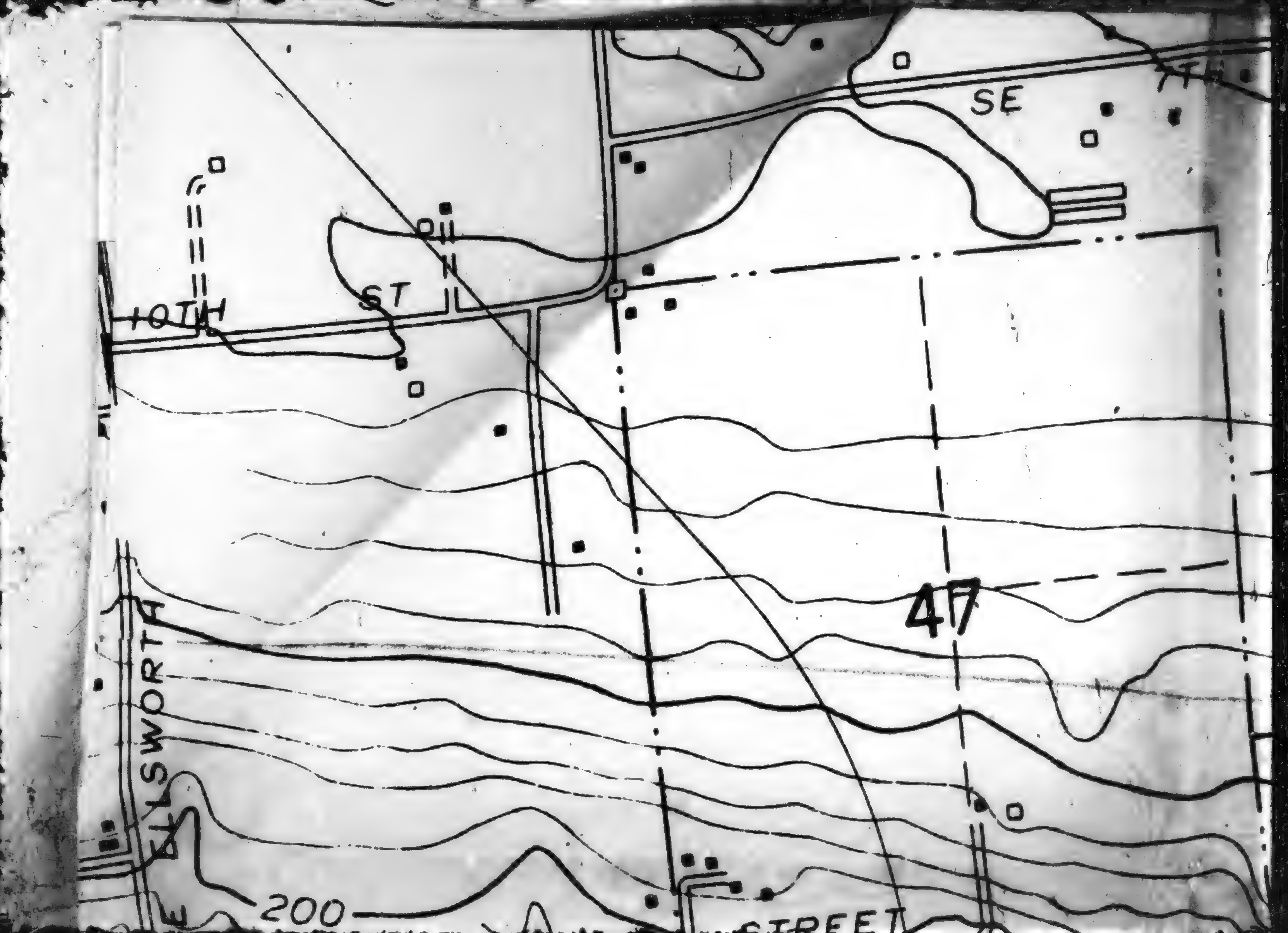
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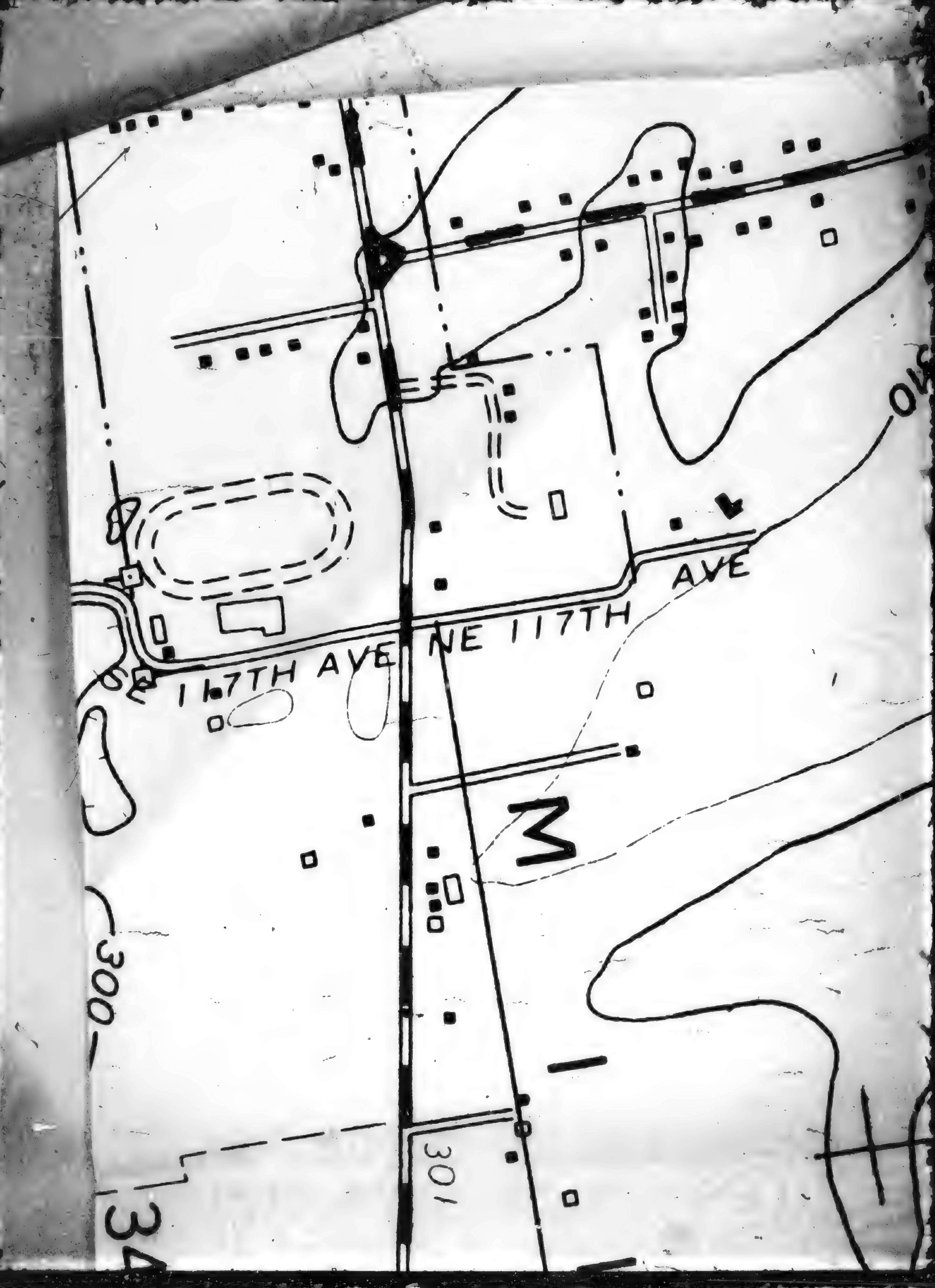
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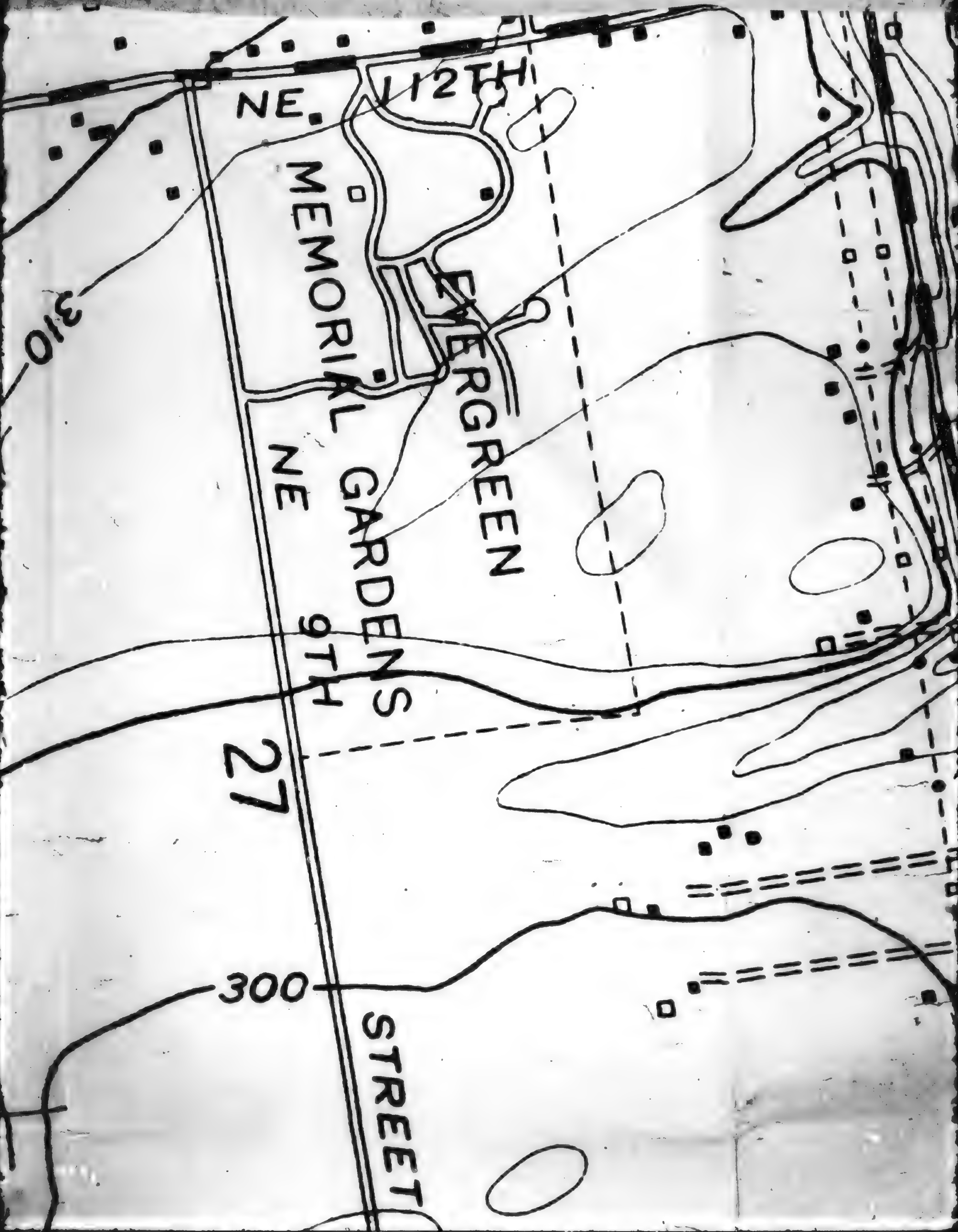
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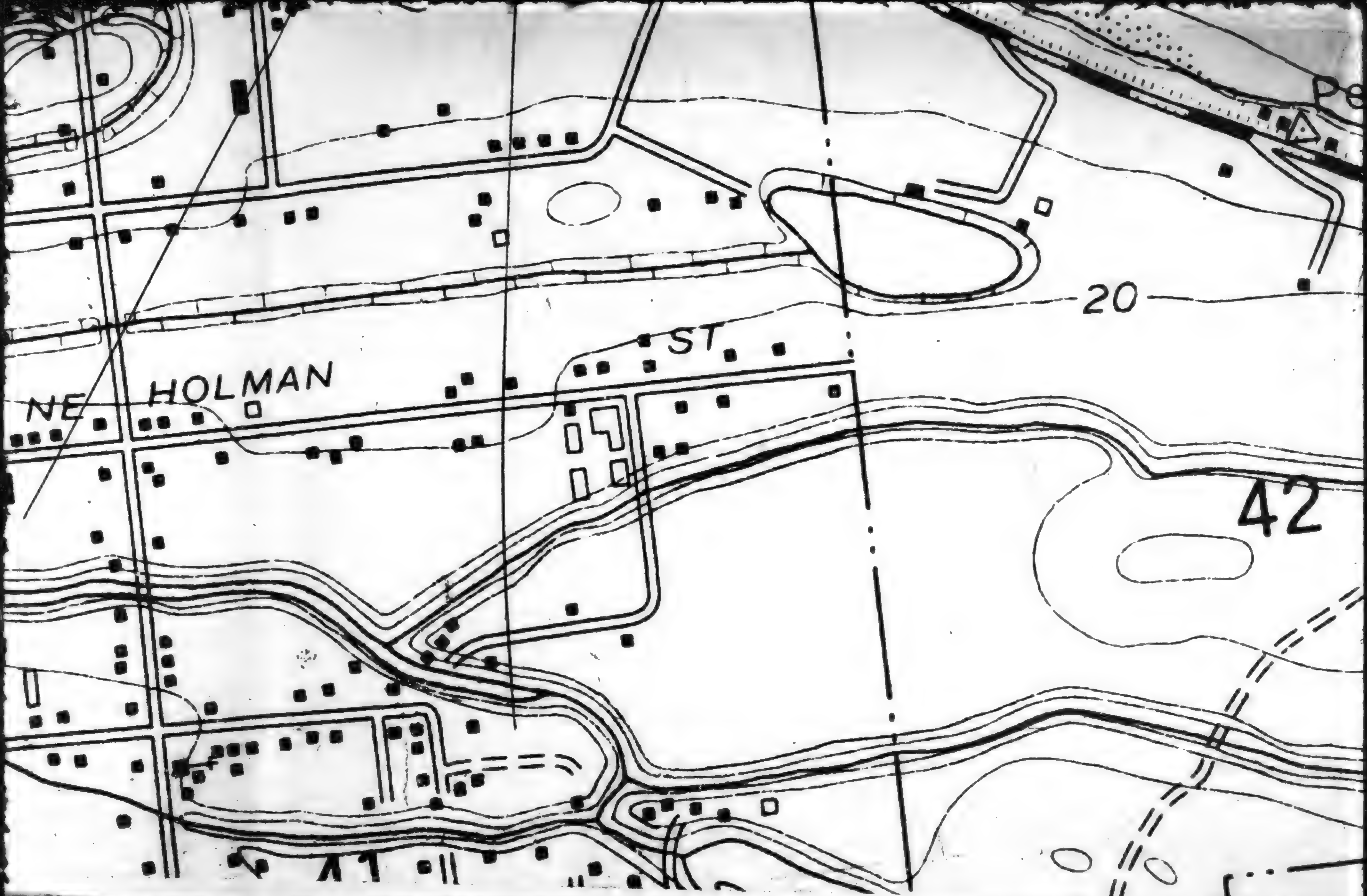
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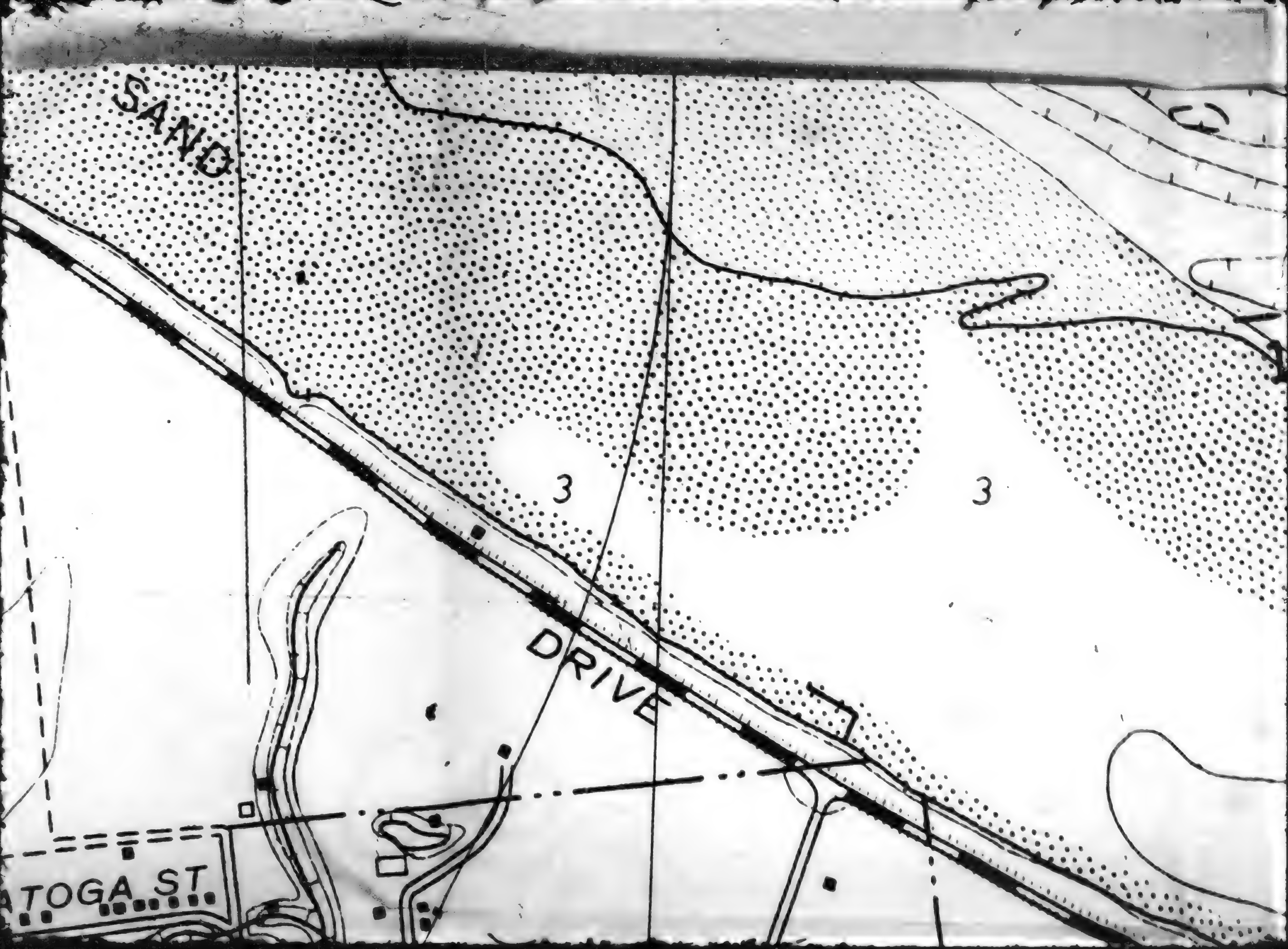
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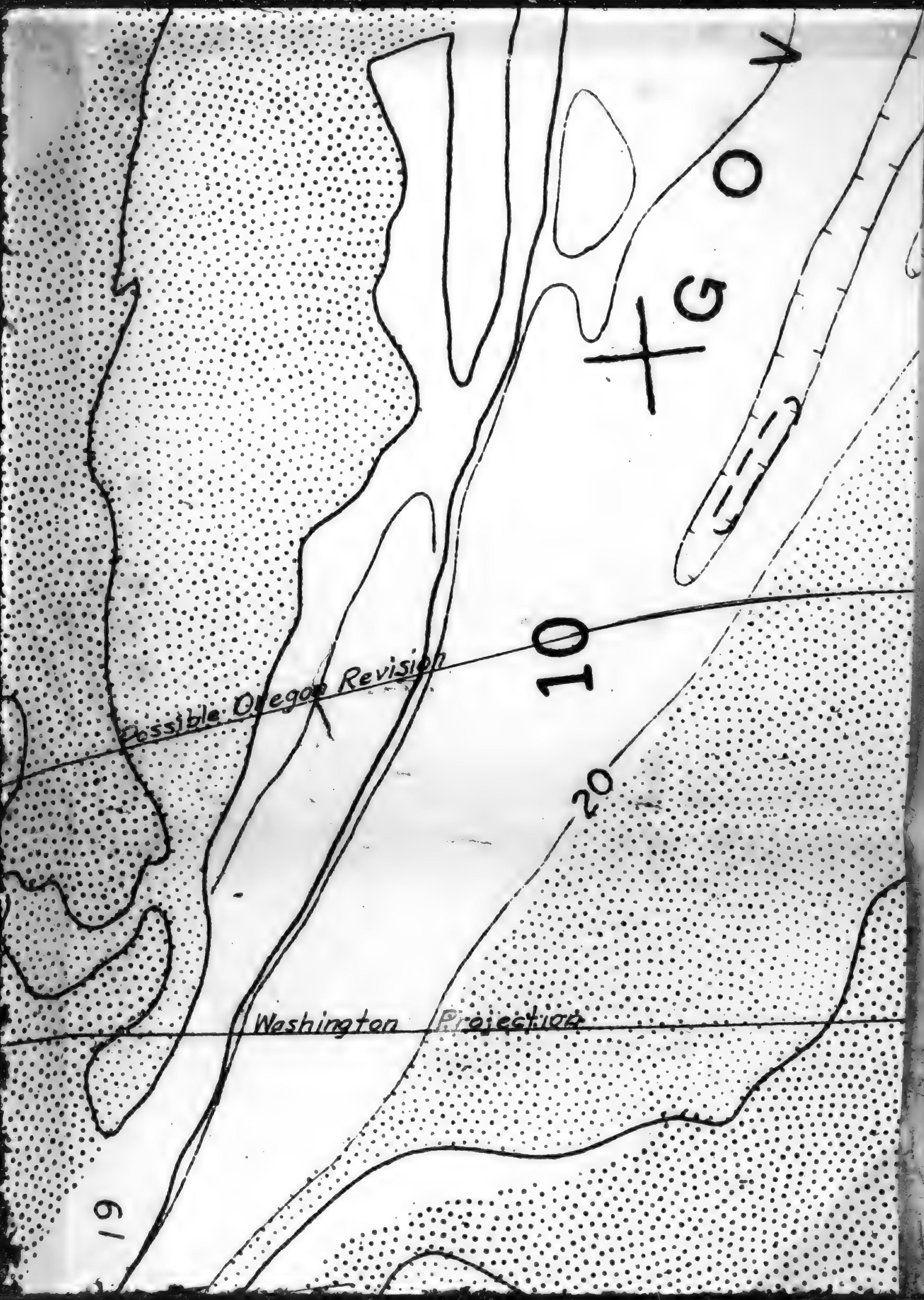

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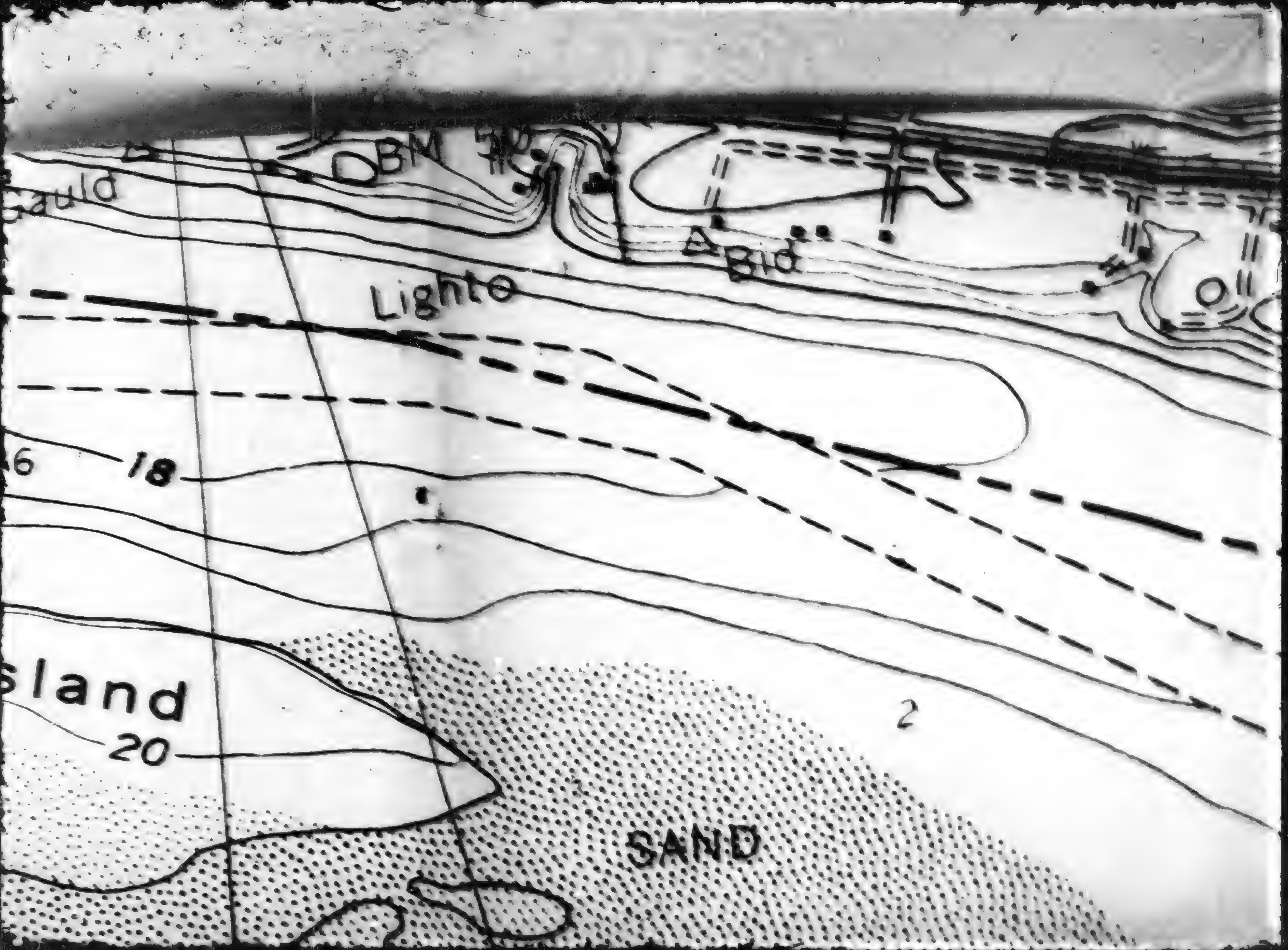
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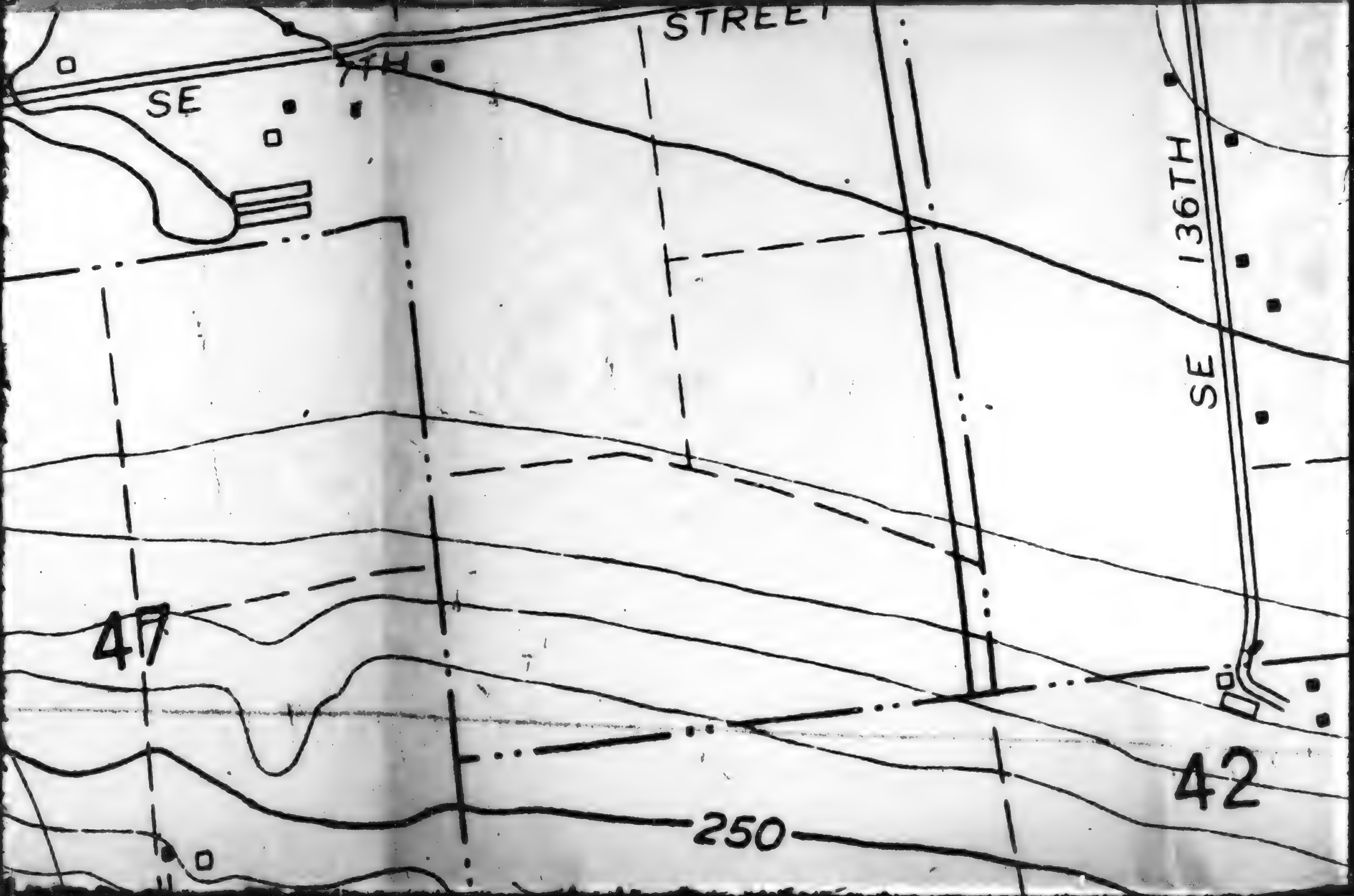
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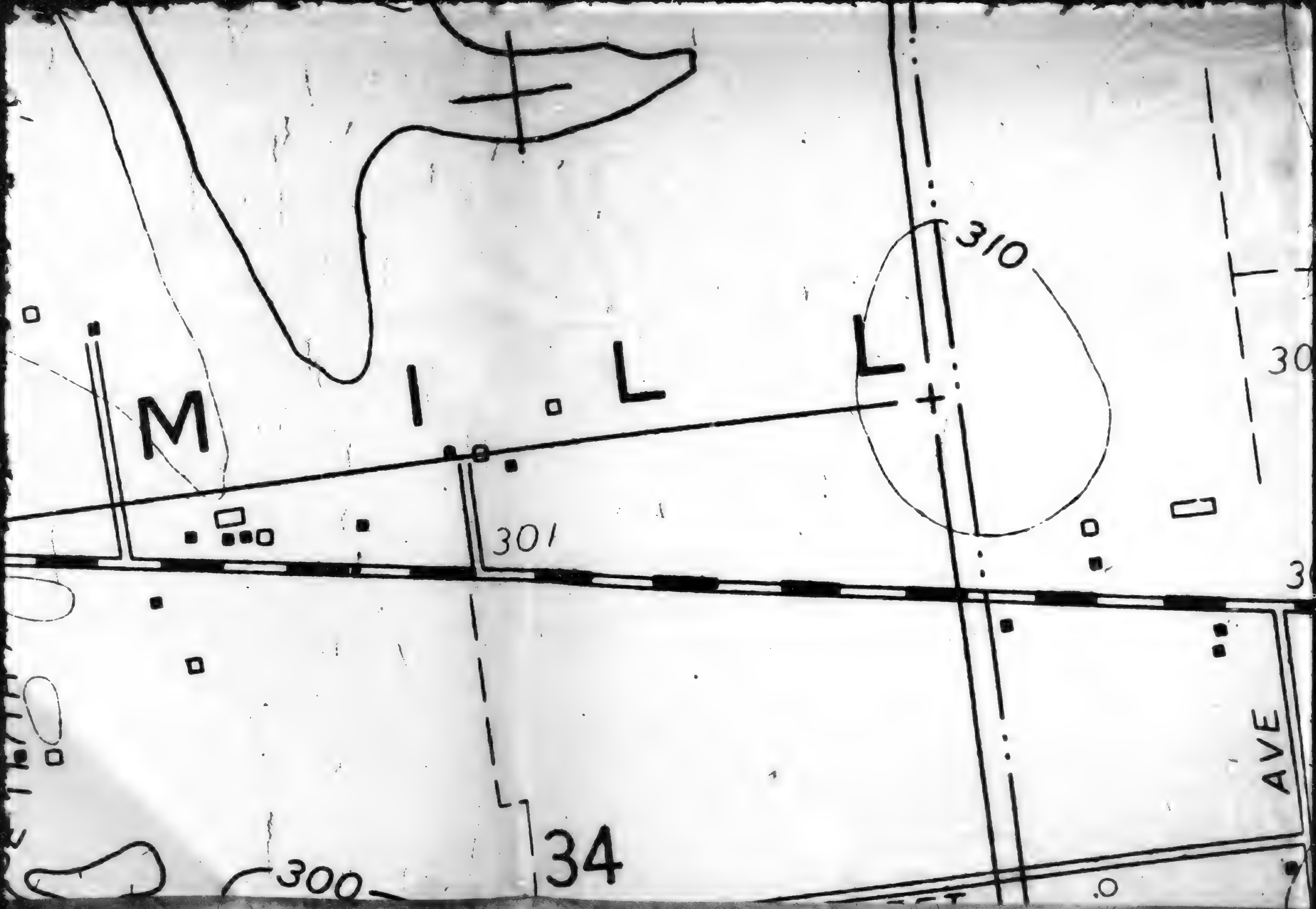
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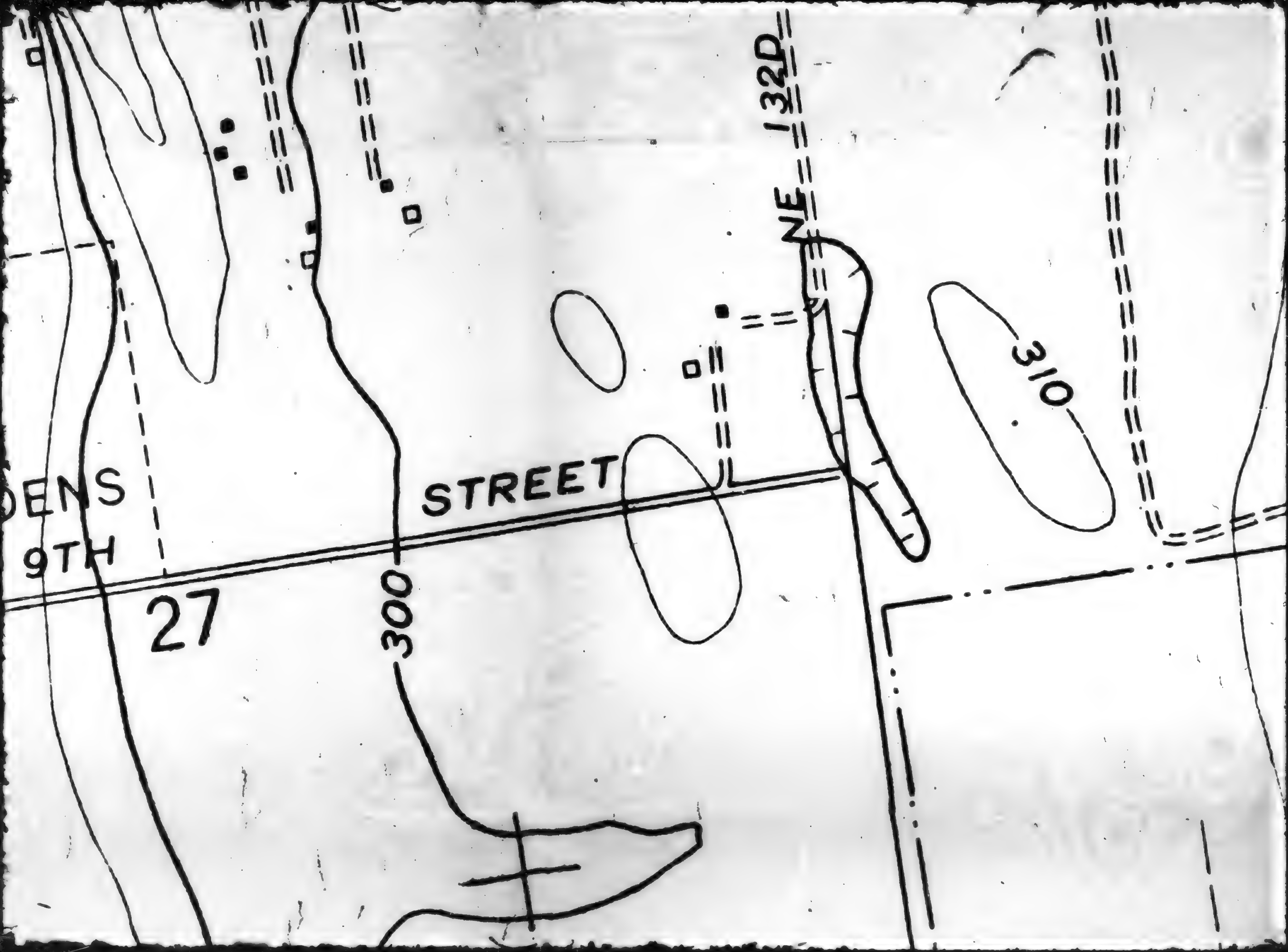
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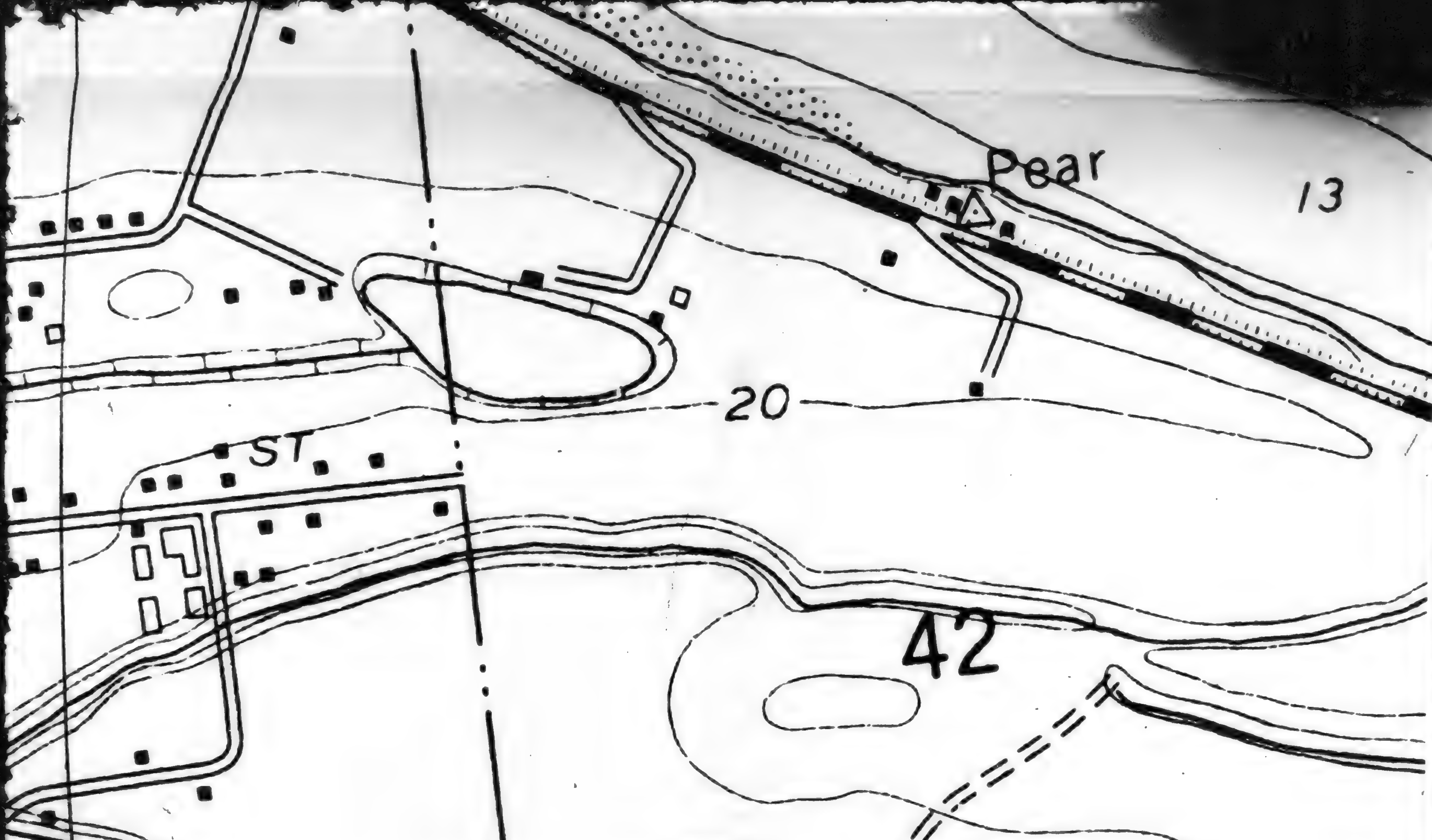
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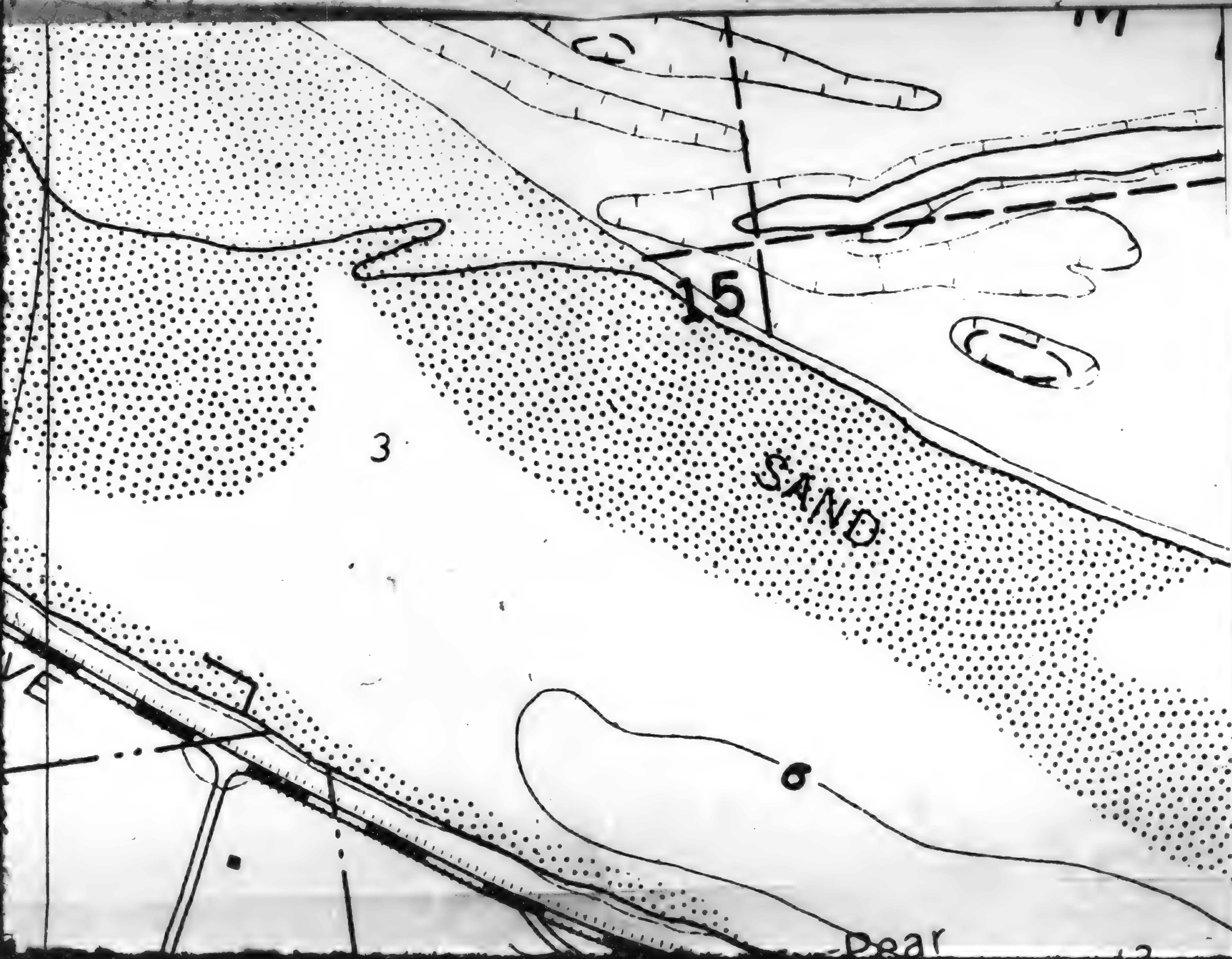
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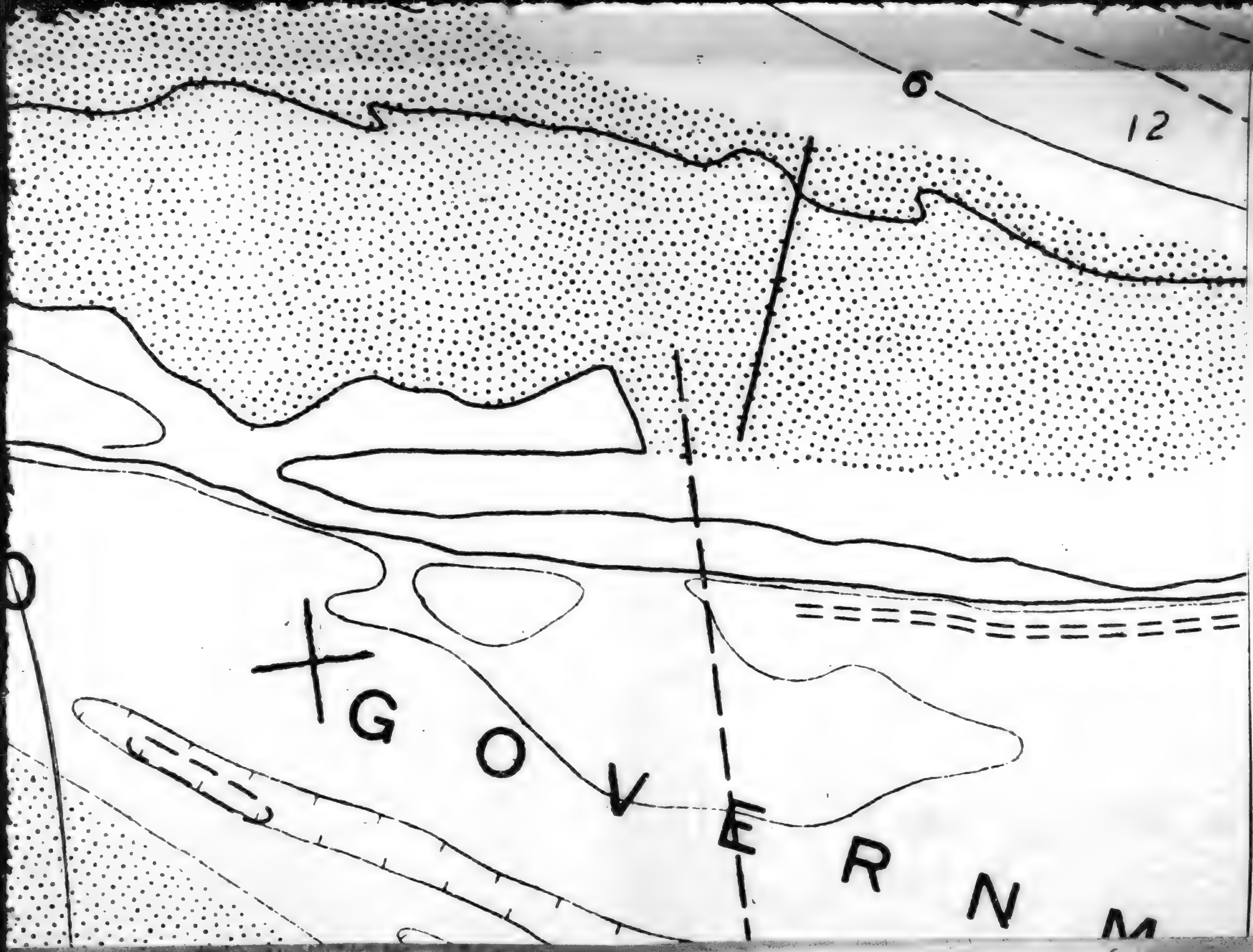
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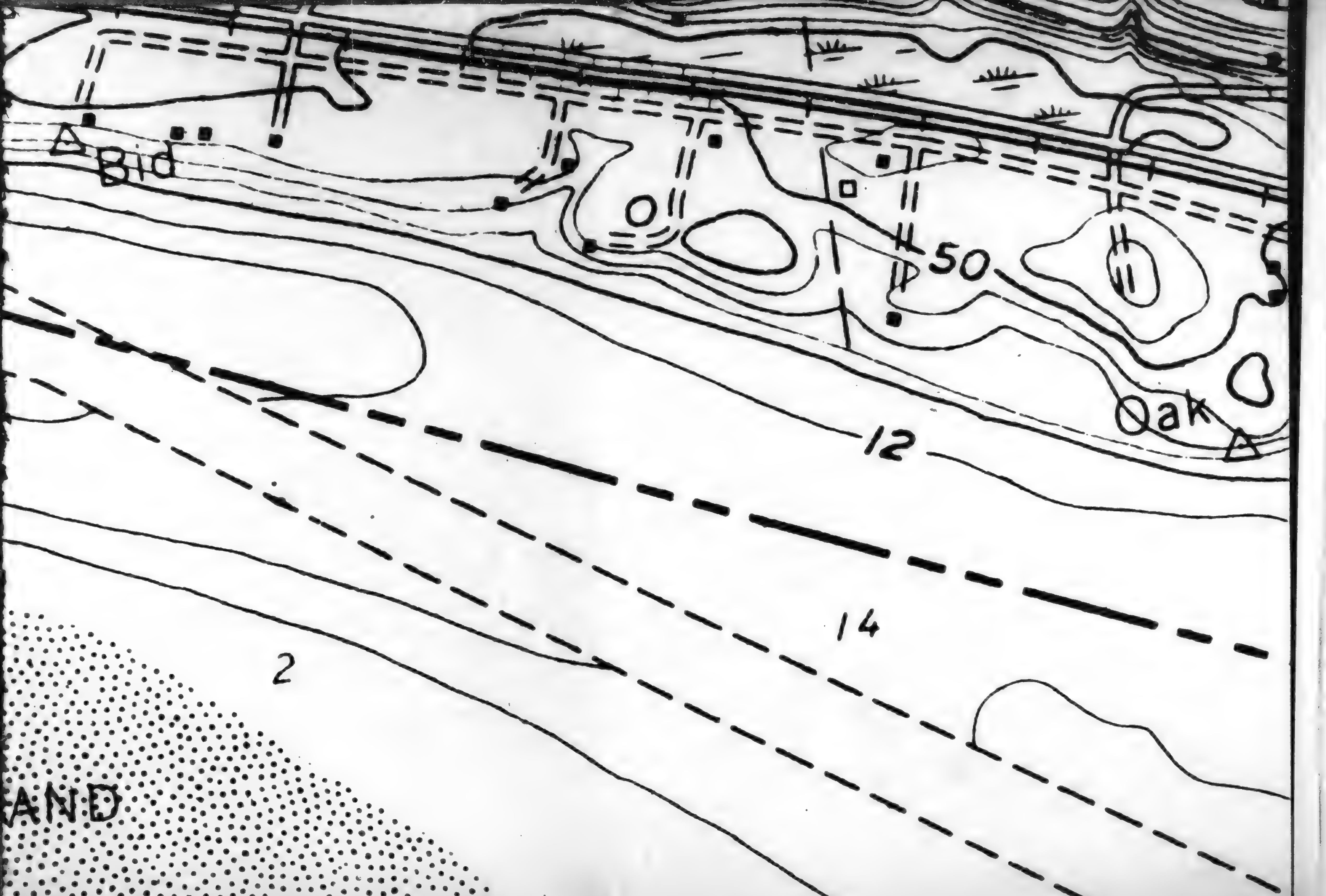
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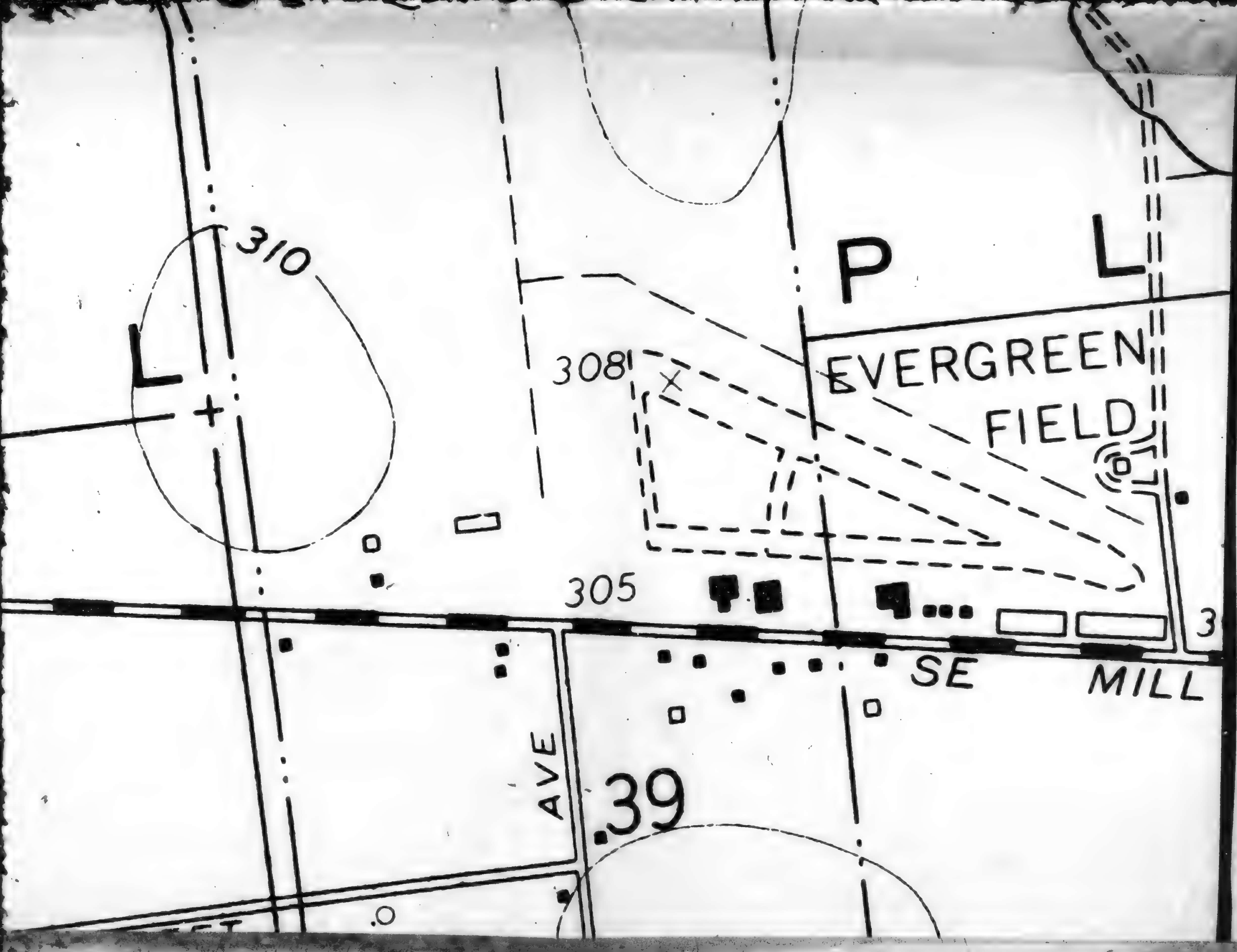
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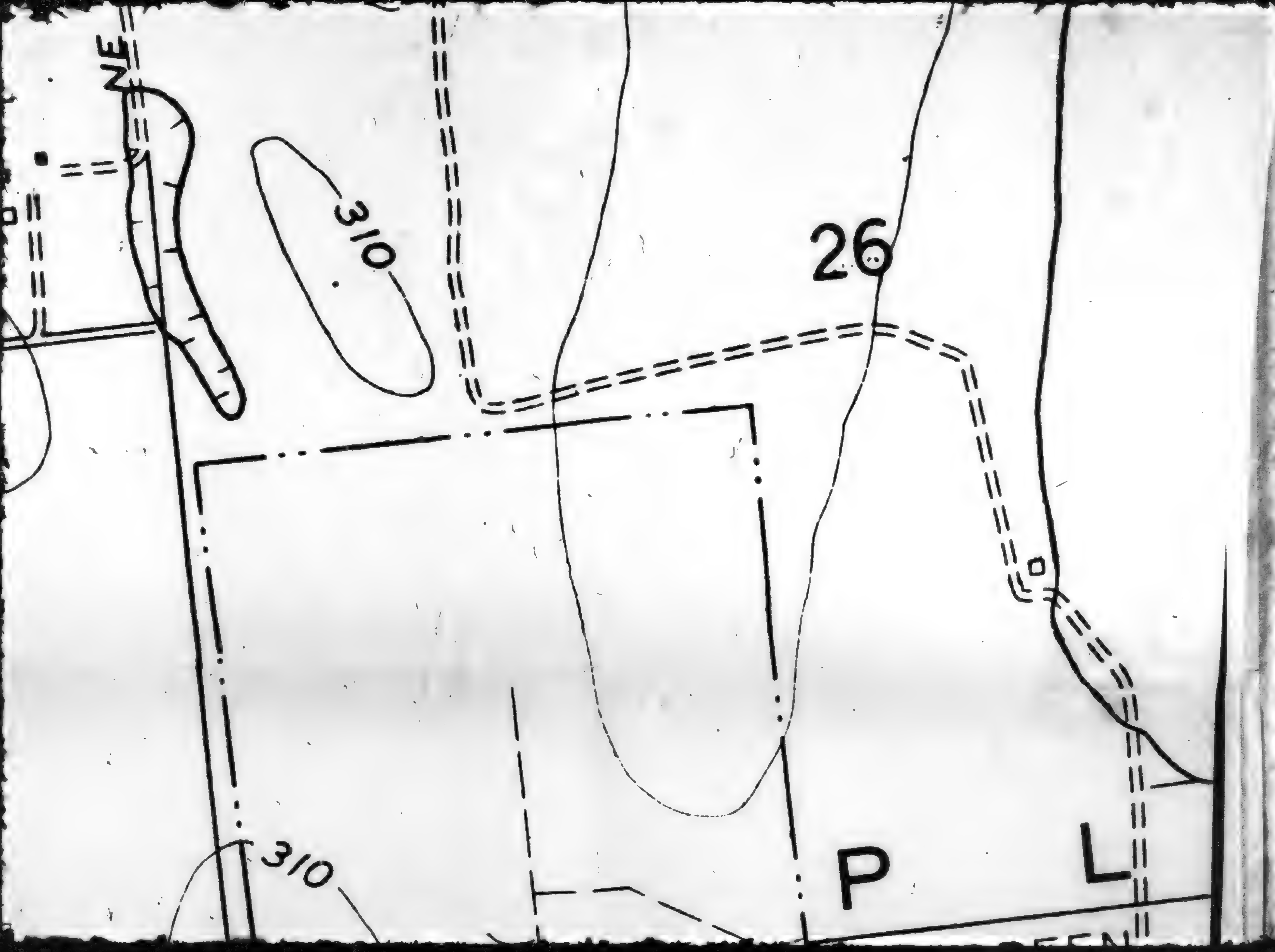
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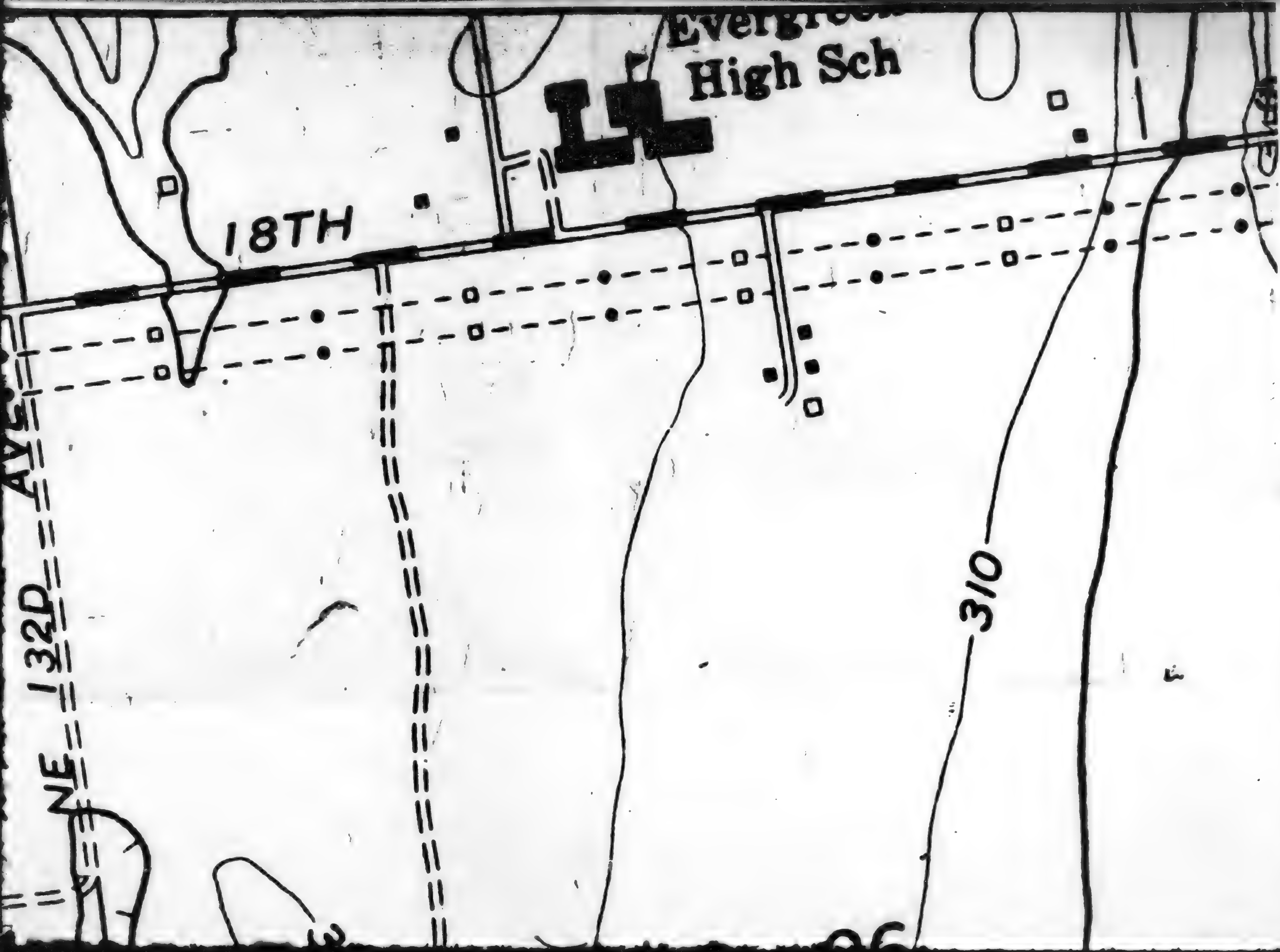
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August 12, 1965

Milwaukie City Council
City Hall
Milwaukie, Oregon

Attention Max Thompson, Manager

Gentlemen:

The State Highway Commission proposes to request approval from the Bureau of Public Roads for the West Linn-96th Avenue - Government Island route for Interstate 205. As an adjunct to this, the Commission has told the City of Portland that a portion of the Mt. Hood Highway from the easterly end of the Marquam Bridge to 96th Avenue will be included in the network. The Commission has indicated that it will use whatever funds as may be available if the Mt. Hood portion cannot be made part of the Interstate system.

While no commitment has as yet been received, we do have indications that the Bureau of Public Roads will give consideration to this proposal.

Very truly yours,

Forrest Cooper
State Highway Engineer

By

F. B. Klaboe
Assistant State Highway Engineer

bc Forrest Cooper
R. L. Porter
Victor Wolfe
H. S. Cox

FBK(RLP)mm jwa

(Letter hand delivered by County-City with map - I-205 Freeway Recon.,
West Linn Alternate)

8905

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JUL 13 1965

A 8

**WOOD, WOOD, TATUM, MOSSER & BROOKE**
ATTORNEYS AND COUNSELORS
1310 YEON BUILDING
PORTLAND, OREGON 97204

ERSKINE WOOD
ERSKINE B. WOOD
LOFTON L. TATUM
JOHN D. MOSSER
JOHN R. BROOKE
JOHN G. HOLDEN
RICHARD WM. DAVIS

CABLE ADDRESS "LINWOOD"
TELEPHONE 228-8241
AREA CODE 503

July 9, 1965

SUBJECT: File 6933

cc Klaboe

Mr. R. L. Porter
Deputy State Highway Engineer
State of Oregon
Salem, Oregon

Dear Mr. Porter:

Thank you for your letter of July 8th, and for the little plat enclosed.

I note that the proposed river crossing is only tentative, and that there is considerable flexibility in the location where it will touch the Washington shore. This leaves me with the hope that there will be some changes which will preserve, or at least ameliorate any damage to, this most beautiful part of the Columbia River shore. No other part combines the cultural values here bestowed by Nature herself. (1) The ground is above flood-level and rises in gentle slopes suitable for residences. It is neither low and swampy, nor precipitous bluffs.

(2) It is here, and only here, that the railroad track is far enough back from the river to leave ample space for residences; elsewhere residences have to face the railroad track between them and the river.

NOTED
R. L. PORTER

Copy to Klaboe
7-12-65

(3) Portions of the virgin forests remain, as background for the beautiful gardens that have been developed.

(4) The area is bountifully supplied with crystal clear springs and flowing water, plenty for domestic use and for adornment.

(5) Fine residences and gardens grace this shore, and more will follow unless a bridge discourages them.

(6) Finally, this land reaches to the very water's edge and looks out on one of the great rivers of the world.

I appreciate your kind offer to furnish me with any additional data on request.

Very truly yours,

Erskine Wood

EW:W

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JUL 12 1965
OFFICE OF
STATE HIGHWAY ENGINEER

RECEIVED
JUL 12 1965
OREGON
STATE HIGHWAY COMMISSION

RECEIVED
JUL 8 - 1965
FOR FILING

July 8, 1965

Mr. Erskine Wood
Wood, Wood, Tatum, Mosser & Brooke
1310 Yeon Building
Portland, Oregon 97204

Dear Mr. Wood:

Your File: 6933

This is in response to your June 30 request for a map showing the location of Interstate 205 in the state of Washington near the Columbia River.

Inasmuch as the specific routing has not been finalized, we can offer very little information that varies from that submitted to you in October 1964. I am enclosing the only thing we have available which shows a tentative river crossing. However, it should be pointed out that as far as Oregon is concerned, there is considerable flexibility in the location where it touches the Washington shore. May I suggest that you contact the Washington Department of Highways which has a division office in Vancouver and from which you may be able to obtain something more specific.

If at any time you need additional data from this Department, anything available will be promptly furnished at your request.

Very truly yours,

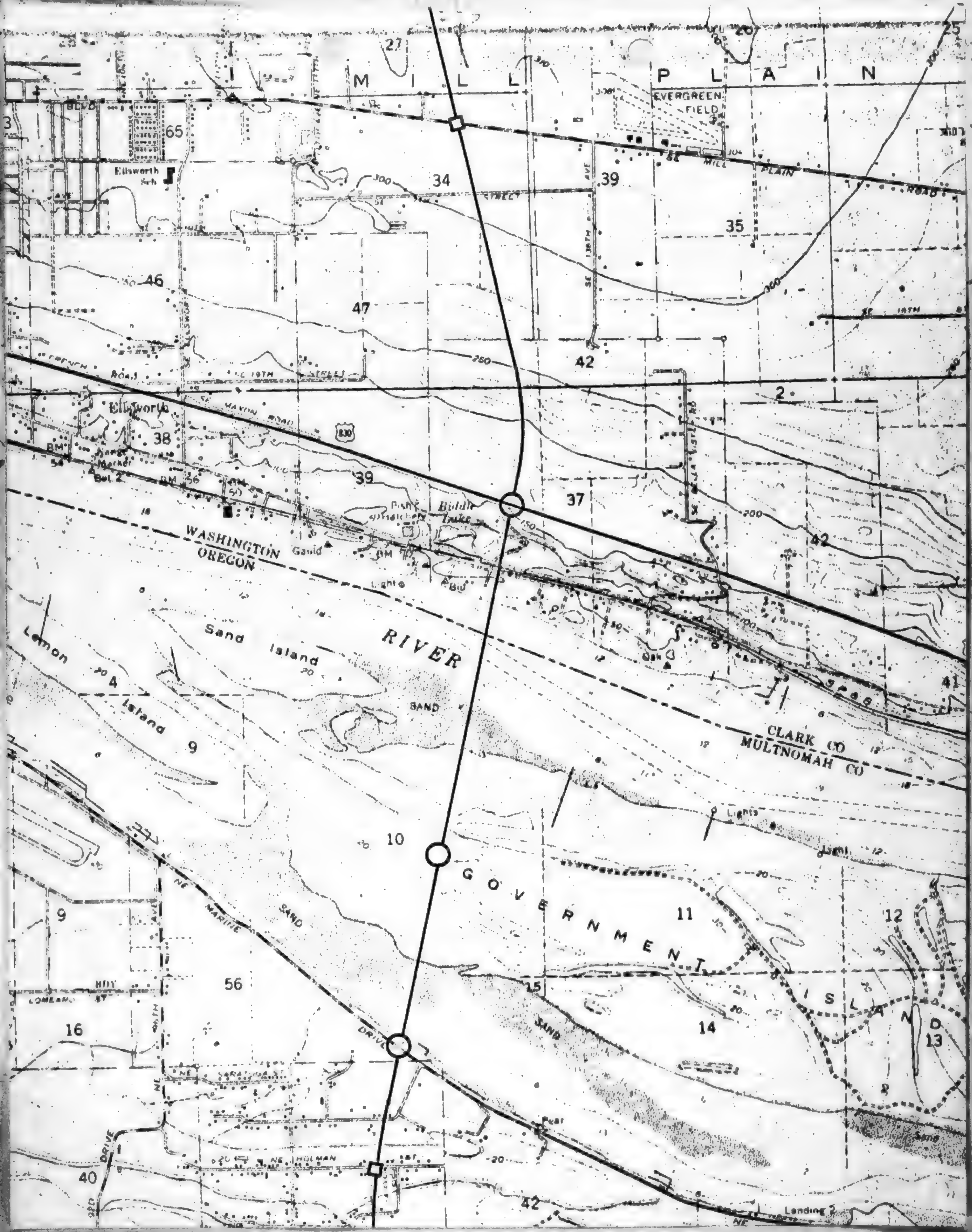
Forrest Cooper
State Highway Engineer

By

R. L. Porter
Deputy State Highway Engineer

RLP:me
enc.

cc: Mr. Forrest Cooper
Mr. F. B. Klaboe
Mr. Victor D. Wolfe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Range Marker
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Biddle Lake
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Lemon Island
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CLARK CO
MULTNOMAH CO
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NE HOLMAN ST
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WOOD, WOOD, TATUM, MOSSER & BROOKE
ATTORNEYS AND COUNSELORS
1310 YEON BUILDING
PORTLAND, OREGON 97204

ERSKINE WOOD
ERSKINE B. WOOD
LOFTON L. TATUM
JOHN D. MOSSER
JOHN R. BROOKE
JOHN G. HOLDEN
RICHARD WM. DAVIS

CABLE ADDRESS "LINWOOD"
TELEPHONE 226-6241
AREA CODE 503

June 30, 1965

SUBJECT:
File 6933

Mr. R. L. Porter
Deputy State Highway Engineer
State Highway Department
Salem, Oregon 97310

Dear Mr. Porter:

Will you be so kind as to mail me your latest detail plat showing where the proposed Bridge across the Columbia on Route 1-205 is, unless changed, going to land on my property on the Vancouver bank?

Very truly yours,

Erskine Wood

EW:W

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JUL 2 1965
OFFICE OF
STATE HIGHWAY ENGINEER

8705

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DEC 14 1964
FOR FILING

Salem, Oregon
December 10, 1964

Mr. F. D. Morgan
Construction Engineer

Port of Portland
Flight Pattern
Interstate 205

Attention: D. J. Barbee

The attached copy of a letter from George H. Baldwin, General Manager, Port of Portland, indicates concurrence with our alignment revision in the general vicinity of the Broadmoor Golf course.

You will note he also mentions the possibility of lowering our grade line if it is desired to make less lateral shift in the line.

Lloyd P. Shaw
Assistant State Highway Engineer

LPS:ajw

Attachment

cc Forrest Cooper
R. L. Porter

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*Mgr., Aviation Dept.*
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*Mgr., Marine Dept.*
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*Comptroller*
E. W. BAUER
*Mgr., Properties Dept.*
C. H. COVER
*Mgr., Research Planning and Inf.*
W. S. DIRKER
*Chief Engineer*
R. F. DOW

THE PORT OF PORTLAND

Swan Island, P.O. Box 3529, Portland, Oregon 97208
Telephone 503-285-5271

In reply refer to:
ENG-RFD

December 8, 1964

Mr. Forrest Cooper
State Highway Engineer
State Highway Department
Salem, Oregon

Dear Mr. Cooper:

SUBJECT: West Alternate Interstate 205, Multnomah County

The Port of Portland has received your letter dated November 25, 1964, and the two copies of your map showing the possible revision to the West Alternate of Interstate 205 to permit the proposed 1655-foot extension of runway 2-20.

The proposed location has been reviewed by the Port's aviation and engineering departments and, based on the profile previously submitted, found that your plan is in agreement with the requirements of the Port as stated in our letter dated October 1, 1964. It should be mentioned that a relocation of Interstate 205 closer to the end of the runway as a result of a lower profile grade would also be satisfactory to The Port of Portland.

In regards to the application of the military approach surface requirements to the Portland International Airport runways, we would like to repeat that this would not be a requirement of The Port of Portland based on civil aviation needs. As discussed on the telephone with Mr. Bandy of your office, it is suggested that Colonel Cullen A. Brannon, Jr., USAF 337th Fighter Group, Portland International Airport, be contacted on this matter.

Thank you again for your continued cooperation.

Very truly yours,

THE PORT OF PORTLAND

for R. A. Neumeister
GEORGE M. BALDWIN
General Manager

Porter

[illegible]
OFFICE OF
STATE HIGHWAY [illegible]

NOTED
R. L PORTER

cc: Mr. Lloyd P. Shaw

Copy to FC

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DEC 14 1964
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Const
12/21
Laurelhurst

THE PORT OF PORTLAND
SWAN ISLAND
PORTLAND, OREGON

November 25, 1964

TO: G. M. Baldwin

FROM: R. F. Dow

SUBJECT: Meeting with Oregon State Highway Department Assistant State Highway Engineer

On November 19, 1964, Messrs. Neumeister, Fryberger, Dirker and Dow met with Lloyd P. Shaw (assistant State Highway Engineer) and D. J. Barbee (assistant Construction Engineer) in Salem to discuss the recent Port study pertaining to highway facilities and access to the Portland International Airport and the Rivergate Industrial District.

Mr. Neumeister explained the Port's interest in the best possible highway access to the Portland International Airport, expecially in regards to planning for a high capacity access from either I-205 East or West to accommodate the increased traffic which is actually increasing nearly 20% per year. This rate is expected to continue to increase in the foreseeable future. The Metropolitan Transportation Study indicated that from 1960 to 1980 the area daily traffic loads will increase about 1.7 times. In this period, the traffic flow for PIA terminal building will increase 2.5 times or half again as much as the area as a whole. Air passengers will increase from 900,000 in 1960 to 2,200,000 in 1980. Experience through 1964 justifies this projection. Traffic will increase from approximately 5,000,000 to 12,000,000 person trips per year to and from the terminal building.

I-205 West was considered first and Mr. Barbee stated that any connection to the airport would have to be on existing roads. Marine Drive, Columbia Blvd., and Killingsworth were all discussed. We were informed that Columbia Blvd. is a county road in this area and probably could not be improved by the State. Lombard and Killingsworth are designated as US 30 by-pass and could possibly serve as the connection between I-205 West and existing 82nd to the airport. Lombard's substandard connection to 82nd was also discussed. The inadequacy of Marine Drive for this access was discussed and Mr. Neumeister said that if I-205 West is constructed that the Port would prefer its access to be located on the South side of the airport, as this is the most direct route for most of the traffic.

Mr. Shaw stated that 82nd, north of Columbia is FAS 727 and is a county road. Some discussion followed centering around its connection with Columbia Blvd. farm accesses, and the grade crossing at Lombard, which were all felt to make it substandard, and would not allow it to handle the expected loads.

I-205 East was considered next. Mr. Adrian Olson (urban engineer) brought in an aerial mosaic dated 1964 which we noted did not include the Lombard extension.

NOTED
LLOYD P. SHAW

He later found a small scale aerial which did show this road. Mr. Shaw outlined the following route to the airport from I-205 East: West on Marine Drive to the Lombard extension then to 82nd and to Airport Way. Mr. Dirker commented that a straight extension of Airport Way would intersect I-205 East (which is shown to about bisect the Pierce property) near the South line of the Pierce property. Mr. Neumeister noted that most of this Airport Way extension would be on present Port property and would be the best airport access route. Mr. Barbee said this was certainly something they would consider.

The possible re-routing of the traffic from Marine Drive, between I-205 East and West locations, to the vicinity of Columbia Blvd. was discussed very lightly.

Mr. Neumeister said that the Port was very interested in having the I-205 constructed but did not have any specific location preference. Our interest was mainly in obtaining a short high capacity connection between the terminal building and the freeway to both the North and South so that the travel time to the passengers origin and destination could be kept as short as possible. The peak hour capacity is not felt to be the critical factor in the trafficway support of the airport. The most important consideration is the ease, convenience, and time distance of the trip for the passengers between their home or office and the airport when it is considered as a component of a long (several thousand mile) complete trip to a distant point. The Port and the Oregon State Highway Department have the opportunity to reduce the frequency of the often repeated complaint of air travelers, "It takes longer to get to and from the airport than it does between cities by aircraft." The time to eliminate this problem is now when freeways and expressways in the airport area are in the planning stages.

Mr. Shaw suggested that we present our thinking at the I-205 public hearing and it was agreed that the Port would submit a statement for the record.

The possible advantages to the Federal government in a high quality primary access from the freeway to the airport and air base from a national defense standpoint was mentioned as a strong asset in obtaining Bureau of Public Roads approval for this primary connection. The fact that the Federal Aviation Agency had a financial interest in Portland International Airport was mentioned as another Federal factor in favor of a primary freeway-airport connection.

Mr. Neumeister brought up the below standard access to the freeway provided for the traffic from the airport to the city center at the intersection of 82nd and the Banfield freeway. Mr. Sahw said that this had again been brought to their attention after a recent near miss and that they are now taking a good look at this problem area.

Mr. Neumeister than told about the Port's plans for the Rivergate Industrial District which will consist of about 1200 acres and may have about 10,000 workers at total development. In addition there may be another 2000 acres of land developed for industry by both public and private interests which may provide employment for up to 15,000 workers. Traffic by both the industrial and recreational programs proposed for the total Peninsula area will severely overload the existing trafficway system serving the area.

He stated that the large base industry (steel, chemical, or other) that was needed to get the district rolling required good highway access to the Minnesota freeway and the Bedroom Area of Washington County. He emphasized that a Columbia Blvd. vicinity expressway connection to the freeway had top priority in the Port's planning and that it will be needed before Rivergate can be developed as it should.

Mr. Shaw mentioned that an expensive 3-mile tunnel would be required to provide a first rate road through the west hills. A shorter tunnel (1 mile) was mentioned as an alternate but either seemed to be some distance in the future even though this road had been discussed in the near past.

In regard to the Columbia Blvd. connection, Mr. Shaw said that Columbia Blvd. was a county road within the city limits in this area and he understood that Multnomah County was hesitant to improve such roads. Mr. Neumeister mentioned that he remembered the county and city trading some roads and thought this was one. (We have been informed by the Multnomah County Road Department that Columbia Blvd. is a city street where it is located within the city limits, west of 42nd, and a county road where it is outside of the city limits, east of 42nd.)

Mr. Shaw asked how flexible the Port was in the location of this route asking if it could be connected to the Union-Marine Drive intersection with the freeway. He said this had a better interchange with the freeway than Columbia. Mr. Barbee said the Denver Interstate interchange could handle a large increase in traffic but he was not sure that it could take a 5 or 6-fold volume.

Mr. Dirker brought out another map which showed this route as a possible future connection which would probably be needed before the whole Rivergate area is developed. It was mentioned that this route would provide a good access to Washington whereas Columbia Blvd. would provide a shorter route to thecity center

Mr. Shaw said they would give this area a reconnaissance survey, review it, and keep it in their minds, and let us know the results of their thinking as soon as possible, within their staff and time limitations.

Dow
RFD/mb

cc: Mr. Shaw (3)
Mr. Neumeister
Mr. Dirker
Mr. Arnold

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NOV 12 1964
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November 12, 1964

library

Mr. George M. Baldwin
General Manager
The Port of Portland
Post Office Box 3529
Portland, Oregon 97208

Dear Mr. Baldwin:

Reference is made to your October 26 letter having to do with highway facilities and access to the Portland International Airport. You suggested that we review your report and that a meeting between our two agencies be held.

We have looked over the material you submitted and will be glad to meet with you at your convenience. If you would care to set the time, we will do everything possible to have the appropriate people from the Highway Department available.

Very truly yours,

Forrest Cooper
State Highway Engineer

cc R. L. Porter
Lloyd P. Shaw
Victor D. Wolfe
Fred Klaboe

RLP:ms bbc

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W. S. DIRKER
*Chief Engineer*
R. F. DOW

THE PORT OF PORTLAND

Swan Island, P.O. Box 3529, Portland, Oregon 97208
Telephone 503-285-5271

In reply refer to:

NOTED
LLOYD P. SHAW

REFERRED TO
Shaw
BY DEPUTY STATE HIGHWAY ENGINEER

Draft for Cooper sig.

October 26, 1964

Mr. Forrest Cooper, Highway Engineer
State Highway Department
State of Oregon
Salem 10, Oregon

Subject: Trafficway Facilities Serving the Portland International Airport

Dear Mr. Cooper:

Attached herewith is a copy of a Port of Portland staff report titled "Portland International Airport Traffic Study", under date of October 22, 1964.

We are submitting this report to you with a request that the Oregon State Highway Department conduct a study of the present and future problems affecting the provision of adequate trafficway facilities needed to serve the airport and its immediate vicinity. Some specific questions which come to our minds include the following:

1. What type of prime traffic access will be provided between the route finally selected for the I-205 Freeway and Northeast Airport Way?
2. Which major east-west roads should be improved to furnish prime access to the airport?
3. What are the probabilities for bringing about major improvement to either the officially designated U.S. Route 30 Bypass or Northeast Columbia Boulevard?
4. What are your recommendations for improving the intersection between Northeast 82nd Avenue and Northeast Lombard Street?

Olson

Copy [illegible]

5. What roadways could feasibly be designated as defense connector routes, particularly to the Portland Air Force Base?

6. How can a better connection between southbound 82nd Avenue and westbound Banfield Freeway be provided?

It is suggested that, after you review the attached study and analyze our above questions, an early meeting between our two agencies be held to resolve this matter.

Very truly yours,

THE PORT OF PORTLAND

GEORGE M. BALDWIN,
General Manager

Attachment

CC: Commissioner Wm. A. Bowes
Department of Public Works
City of Portland

Paul C. Northrop
County Roadmaster
Multnomah County

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OCT 29 1964
OFFICE OF
STATE HIGHWAY ENGINEER

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OREGON
STATE HIGHWAY COMMISSION

-8905

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COMMISSIONERS:
HERMAN P. MEIERJURGEN, CHAIRMAN, BEAVERTON
EDW. G. HUFFSCHMIDT, PORTLAND
LEONARD N. HALL, CHARLESTON

CONSTRUCTION DIVISION
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STATE OF OREGON
FISH COMMISSION OF OREGON
307 STATE OFFICE BLDG., 1400 S. W. 5TH AVENUE
PORTLAND 97201

December 1, 1964

Mr. Forrest Cooper
State Highway Engineer
Highway Building
Salem, Oregon 97310

Attention: Mr. F. D. Morgan, Construction Engineer

Dear Mr. Cooper:

A copy of your letter dated November 9, 1964 to Mr. P. W. Schneider, Director, Oregon State Game Commission, requesting comments on the proposed Interstate 205 Freeway utilizing the 96th Avenue route traversing Game Commission land on Government Island was thoughtfully sent to us. We have reviewed this correspondence and have taken the liberty to offer the following comments:

1. We are specifically interested in any aspect of the project which affects fish or fish habitat. No major problem is anticipated in this regard; however, at such time as specific details of construction, dredging and/or blasting on any fishery related phase of the project are available, we would appreciate receiving an advance copy so that we might review it from the fishery standpoint.

2. If blasting in water is found necessary the contractor must apply to the Fish Commission of Oregon for a permit to blast. It will be appreciated if such application is made at least two weeks prior to anticipated blasting activities. It may be necessary for us to place time restrictions on blasting to protect migrating fish.

3. Bridge construction on the Columbia River in the vicinity of Government Island may interfere with the commercial gill-net fishery; therefore, we recommend that you obtain comments from the commercial fishing industry. For this purpose, please contact Mr. William Westerholm, Columbia River Fishermen's Protective Union, 322 Tenth Street, Astoria, Oregon.

NOTED
LLOYD P. SHAW

Copies to:
L. P. Shaw
L. H. Young
Frank Hall
T. C. Roake
J. E. Morelock
F. B. Klaboe (2)

This letter will confirm our comments given to you in a telephone conversation on the requested deadline date of November 24, 1964

We appreciate your bringing this matter to our attention.

Sincerely,

Robert W. Schoning

ROBERT W. SCHONING
STATE FISHERIES DIRECTOR

cc. Oregon State Game Commission
Mr. William Westerholm, Columbia River Fishermen's Protective Union

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DEC 3 1964
OFFICE OF
STATE HIGHWAY ENGINEER

RECEIVED
DEC 2 1964
OFFICE OF
STATE HIGHWAY ENGINEER

8905

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MAY 11 1967

Use for addendum
76

Presented & ~~sent by~~ Baldwin
12-11-64 I-205

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Mgr., Properties Dept.
C. H. COVER
Mgr., Research Planning and Inf.
W. S. DIRKER
Chief Engineer
R. F. DOW

THE PORT OF PORTLAND

In reply refer to:

Swan Island, P.O. Box 3529, Portland, Oregon 97208
Telephone 503-285-5271

December 1, 1964

Mr. Forrest Cooper, Highway Engineer
State Highway Department
State of Oregon
Salem 10, Oregon

Dear Mr. Cooper:

The Port of Portland wishes to advise you of its support of the development of the I-205 freeway, as a North-South bypass through the eastern part of the metropolitan area.

Of particular interest to the Port is ground access to the Portland International Airport. This airport serves a large region, including the entire State of Oregon and Southern Washington. Growth of air passenger and air cargo traffic has been spectacular, and is projected to be even greater in the future. It seems clear this element will grow at an even more vigorous rate than the rest of the metropolitan region. Considering that the advantages gained by passengers and cargo from air transportation can be lost by an inefficient ground transportation network at the terminal cities, we feel the highest priority should be given to solving this problem and so to protect the public investment in air terminals, aircraft and airways. The Portland Air Force Base is also located at the Port's International Airport, and these defense considerations add support to our request that the best possible access be provided between the airport and either the East or West alignment of I-205.

The Port has certain statutory responsibilities which charge it with a broad interest in the economic welfare of the region. An adequate ground transportation system is certainly the framework upon which any economic region thrives. The freeway route through the eastern part of the area will make a major contribution to our economic vitality. Trucks, employees, customers and businessmen will all be served by such a freeway. This development will permit better use of the existing streets and will avoid the certain congestion and blight which follows lack of adequate transportation systems. This, in turn, will have its effect upon the tax base of the community and upon the efficiency of the economic activities within the area.

We have reviewed the suggested East and West alignments of I-205, but do not feel it within our competence to recommend one or the other. The Port, however, is involved in certain direct activities which are clearly affected by this freeway. The Port is developing the Swan Island Industrial Park, which will ultimately contain about 10,000 employees. Full development of the Port's Rivergate Industrial District in the North Portland area could accommodate 10,000 to 15,000 employees. The rapid, safe and efficient movement of these people, and the vehicular traffic associated with their industries, is critical to the growth of the area.

Thank you very much for your consideration of our views.

Very truly yours,

THE PORT OF PORTLAND

George M. Baldwin

GEORGE M. BALDWIN,
General Manager

RECEIVED
DEC 7 - 1964

REFERRED
TO Mr Porter
FOR Info to base reply
G. E. ROHDE

**WOOD, WOOD, TATUM, MOSSER & BROOKE**
ATTORNEYS AND COUNSELORS
1310 YEON BUILDING
PORTLAND, OREGON 97204

CABLE ADDRESS "LINWOOD"
TELEPHONE 226-8241
AREA CODE 503

ERSKINE WOOD
ERSKINE B. WOOD
LOFTON L. TATUM
JOHN D. MOSSER
JOHN R. BROOKE
JOHN G. HOLDEN
RICHARD WM. DAVIS
MARK M. MATTHIESSEN
(1911-1962)

November 20, 1964

SUBJECT I-205 Freeway

RECEIVED
NOV 23 1964
LEGAL & RIGHT OF WAY

Mr. G. E. Rohde
Acting Chief Counsel
State Highway Department
Salem, Oregon 97310

NOTED
L PORTER

Dear Mr. Rohde:

As I mentioned to you after the recent Highway Commission meeting at the Park Haviland Hotel in Portland, I am greatly interested in the location of the I-205 Freeway, and would very much prefer the west alternate through the east side of the City of Portland.

In the Highway Department's I-205 Freeway report (Technical Report No. 64-5) it is stated on page 7 that the City Counsel of Lake Oswego refused to allow a freeway to be constructed through that city. The report then refers to ORS 374.060 as follows:

> "The State Highway Commission, with the official approval of municipal authorities of cities with respect to city streets and the official approval of the county court or board of county commissioners of any county with respect to county roads may:
>
> (1) Close any street, highway or road at or near the point of its intersection with a throughway; or
>
> (2) Make provision for carrying the street or road over or under the throughway; or
>
> (3) Provide a connection with a throughway by means of a utility or service road to a suitable point of connection; and
>
> (4) Do any and all work on the street, highway, or road as is necessary therefor."

The report then states that the City of Oswego's refusal to permit the highway nullified the routes through Oswego. I would appreciate it if you would advise more fully just why

Oswego's action nullifies the routes. I have been very reliably informed that the Trion Creek route would not close or interfere with any street or road in the City of Lake Oswego.

My interpretation of ORS 374.060 is that approval of the municipal authorities is required only in those cases where the highway will close or interfere with an intersecting street; and that therefore the City of Oswego's approval would not be required for the Trion Hill route.

I would appreciate your advising whether you disagree with my interpretation of the law. Very likely your legal staff, or the Attorney General, has prepared some opinion on this matter, and if so, I would greatly appreciate it if you would furnish me with a copy.

Thanking you for your courtesy,

Sincerely yours,

Erskine B. Wood
ERSKINE B. WOOD

EBW/lc

8905

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NOV 24 1964
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Commissioners
Tallant Greenough, Coquille
Chairman
Joseph W. Smith, Klamath Falls
Vice-Chairman
John P. Amacher, Winchester
J. Pat Metke, Bend
Wayne E. Phillips, Baker

Mailing Address
P. O. Box 3503
Portland, Oregon 97208

STATE OF OREGON
OREGON STATE GAME COMMISSION
1634 S. W. ALDER STREET
PORTLAND

CONSTRUCTION DIVISION
NOV 1[illegible] 1964
NOTED ☐ CE ☐ ACE ☐ ACE ☐ ☐ CCE

November 16, 1964

Mr. Forrest Cooper
State Highway Engineer
State Highway Department
Salem, Oregon 97310

Attention F. D. Morgan, Construction Engineer

Subject: Report No. 64-5 on the Interstate 205
Freeway through Portland in Multnomah County

Gentlemen:

The Game Commission owns Lemon and McGuire Islands and all of Government Island except a small portion at the east end and a small tract of about one acre of public domain of the United States Government. The titles read to the State of Oregon by and through its Game Commission or comparable wording, ORS 496.420 restricts the sale of this property "to any person or entity other than the United States, the State of Oregon, or a political subdivision of the State of Oregon, or an instrumentality of the United States, the State of Oregon, or a political subdivision of the State of Oregon."

Construction of this interstate freeway across Government Island will make untentable our operation of Lemon, McGuire and Government Island as a Wildlife Management Area.

It does not seem appropriate for the Game Commission to take any position, either pro or con on the 96th Avenue route. However, the Government Island Wildlife Management Area is an integral part of the Pacific Migratory Bird Flyway development program and must be replaced. If the Highway Commission decides to use this route, we would be receptive to an exchange of other suitable wildlife lands for Lemon, McGuire and our part of Government Island.

Very truly yours,

P. W. Schneider

P. W. Schneider
Director

Copies to:
- L. P. Shaw
- L. H. Young
- Frank Hall
- T. C. Roake
- J. E. Morelock
- F. B. Klaboe (2)

NOTED
LLOYD P. SHAW

NOV 1[illegible] 1964
OFFICE OF
STATE HIGHWAY ENGINEER

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8905

4
J

October 27, 1964

Mr. Robert F. Dow, Chief Engineer
The Port of Portland
Swan Island, Post Office Box 3529
Portland, Oregon 97208

Dear Mr. Dow:

This acknowledges receipt of the latest data in regard to extension of runway 2 and the 40:1 FAA approach surface slope.

We have placed this on our maps and mosaics and are retaining it for future use if needed. In the event we make any alterations in our proposed alignment, we will see that you are properly informed.

Thank you very much for your courtesy in this matter.

Very truly yours,

Forrest Cooper
State Highway Engineer

By

Lloyd P. Shaw
Assistant State Highway Engineer

LPS:ajw

cc Forrest Cooper
R. L. Porter

FORM E-30 50M 12-63 54676

**OREGON STATE HIGHWAY DEPARTMENT**
INTER-DEPARTMENT CORRESPONDENCE

Salem, Oregon
October 15, 1964

SUBJECT: West Alternate, Interstate 205
Multnomah County

To:

Mr. Lloyd P. Shaw
Assistant State Highway Engineer
Building

Herewith a print showing our original location of Interstate 205 in relation to the Portland Airport, the first revision as sent to Mr. Dow, Chief Engineer, Port of Portland, and the new revision as a result of Mr. Dow's October 1 letter.

Our first revision was adjusted to meet a 2155-foot extension and a 50:1 instument approach on Runway 2. The new revision is in relation to the 1655-foot extension and non-instrument approach of 40:1 which Mr. Dow states is sufficient. It seems too early to worry about any line in this area; however, it appears we will have no difficulty in complying with the airport needs.

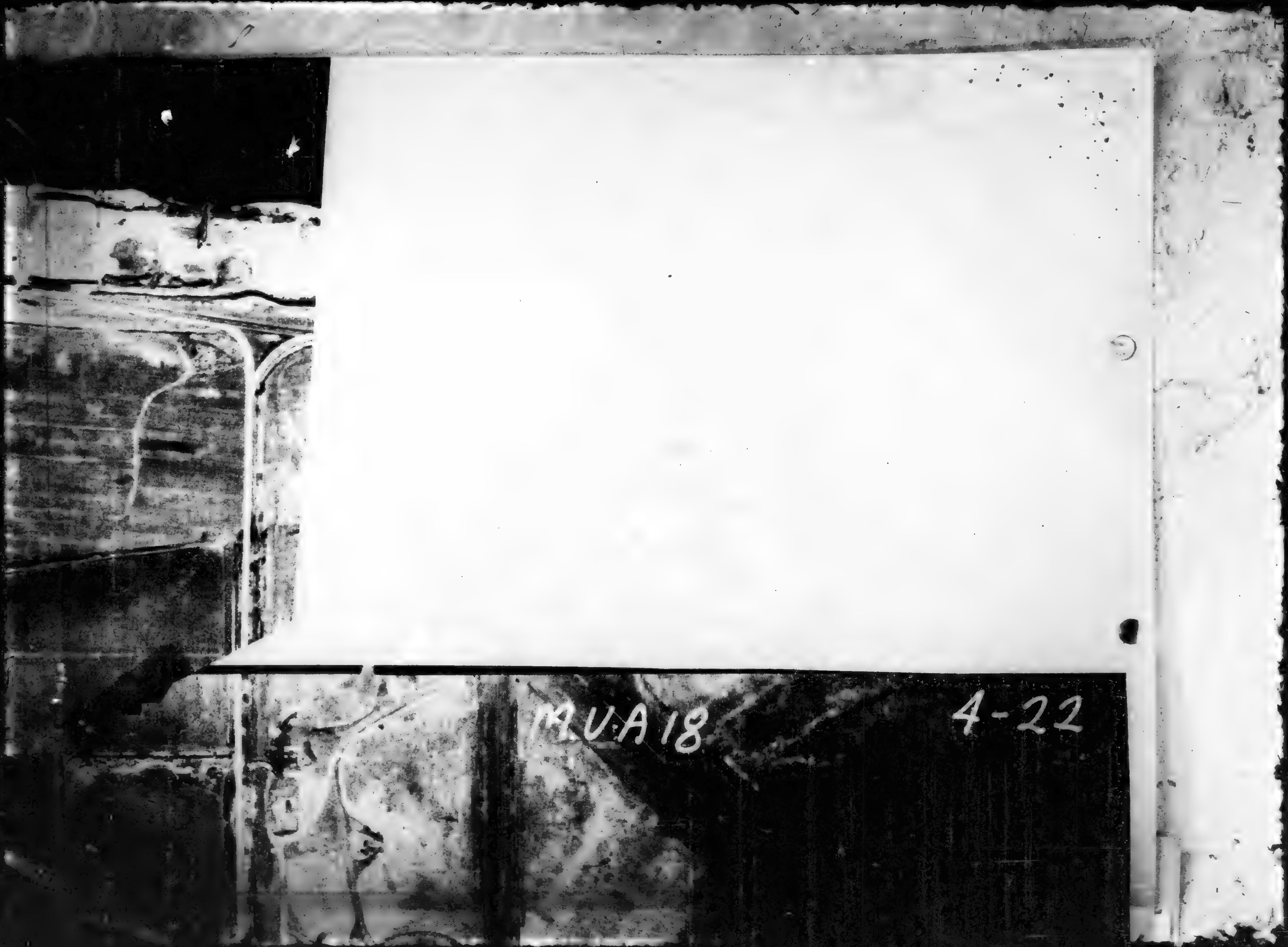
This map is sent merely for your information.

F D. Morgan
Construction Engineer

By D. J. Barbee
D.J. Barbee
Assistant Construction Engineer

DNS:jp
Enclo.

RECEIVED
OCT 16 1964
OFFICE OF
STATE HIGHWAY ENGINEER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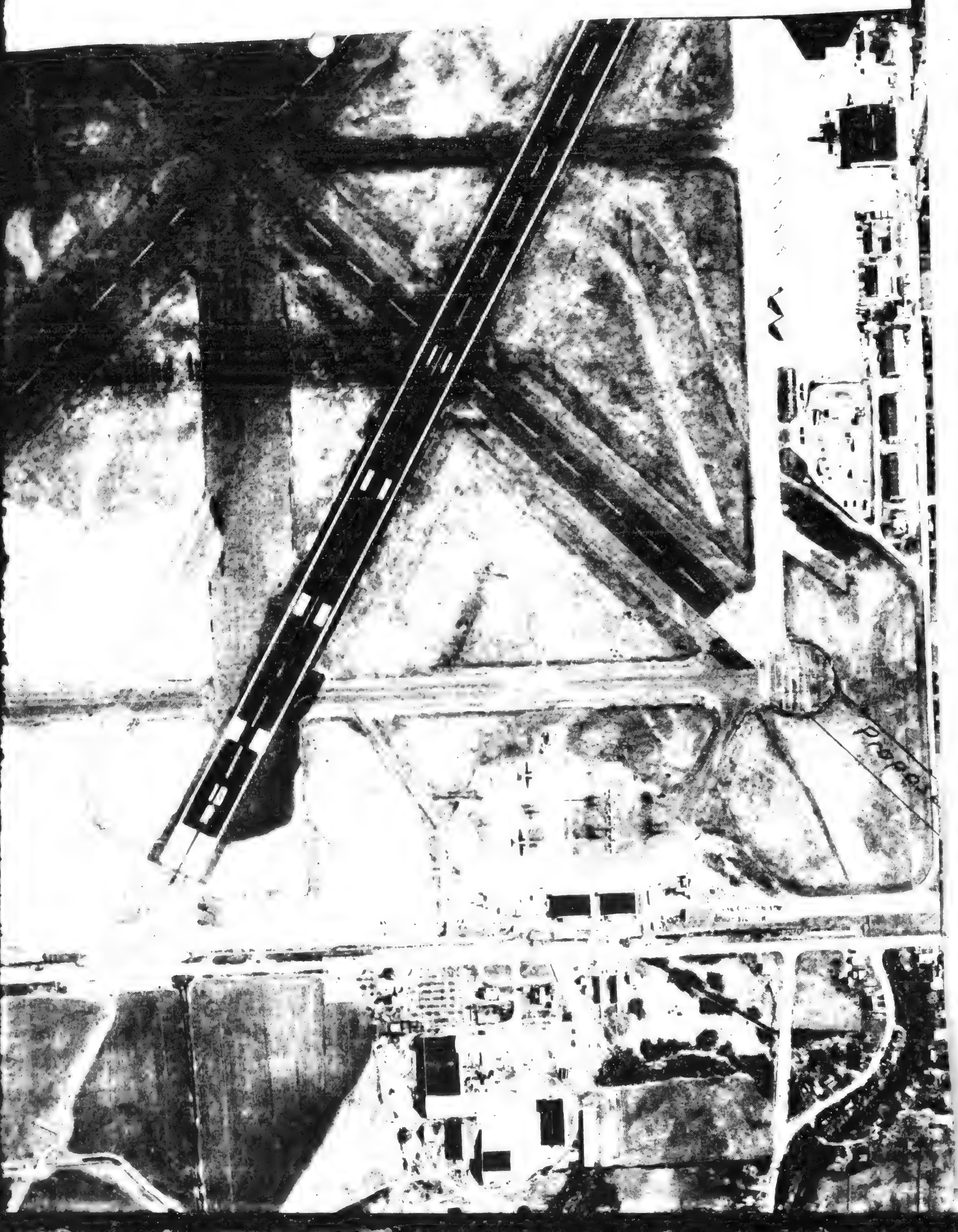
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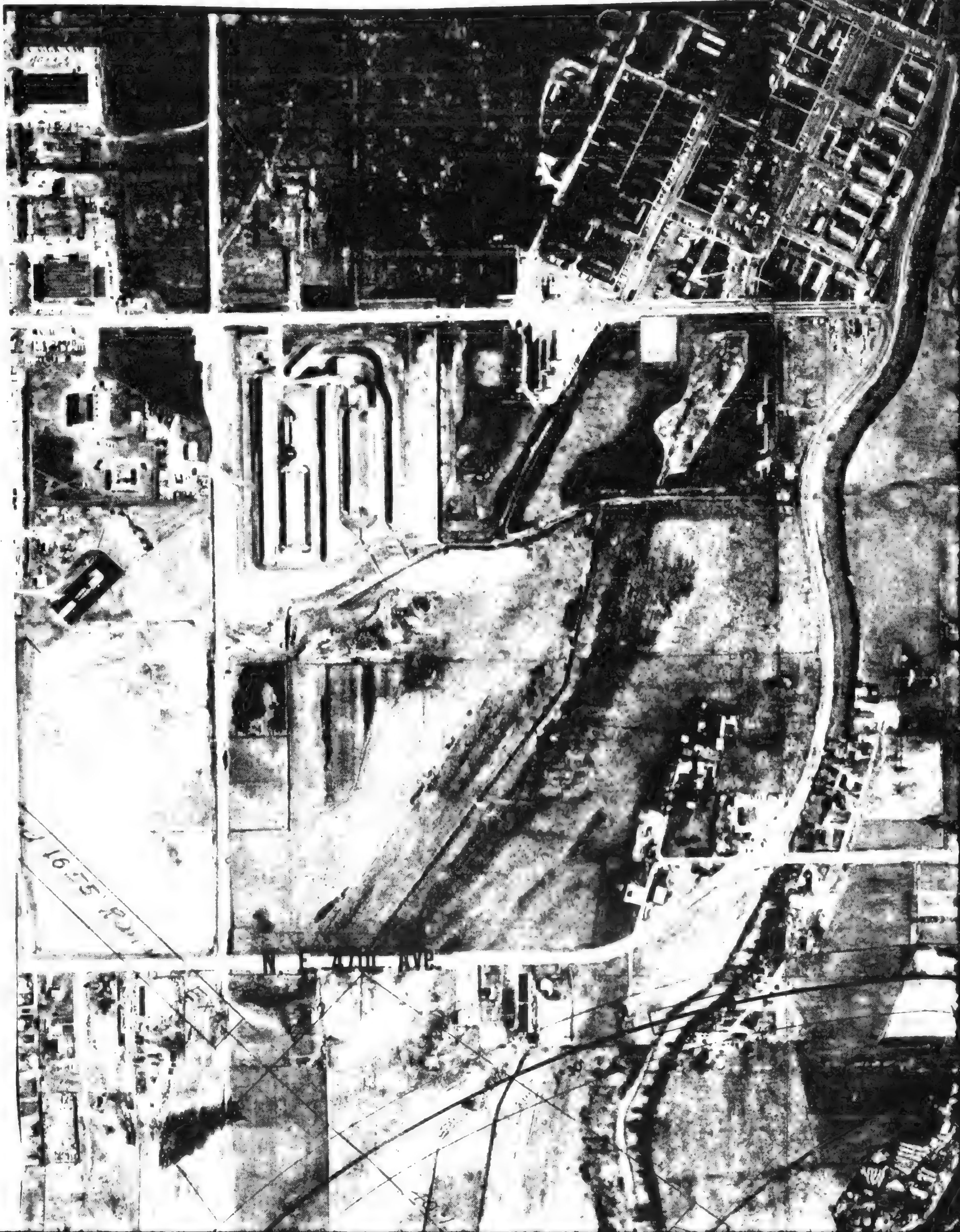
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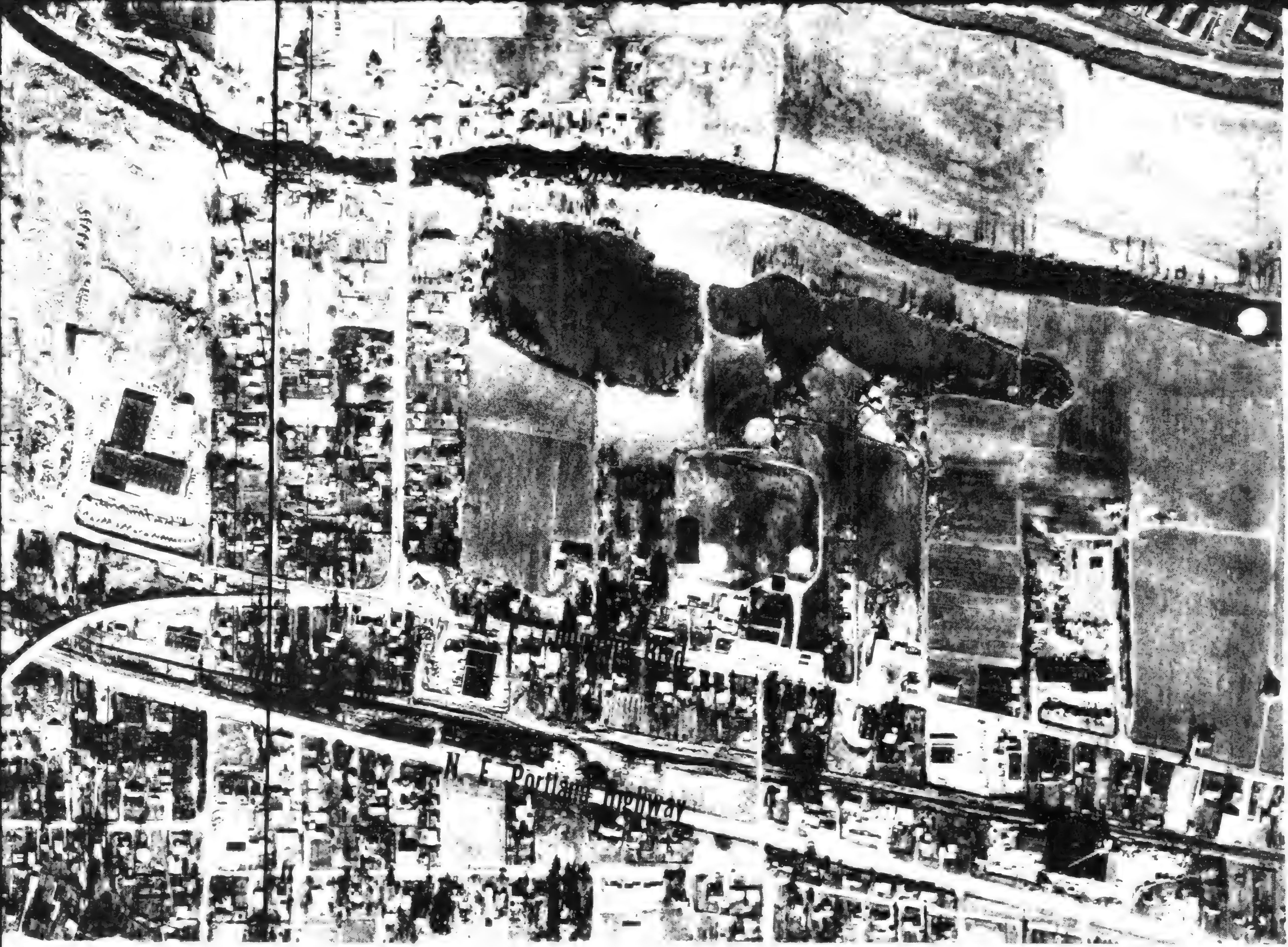
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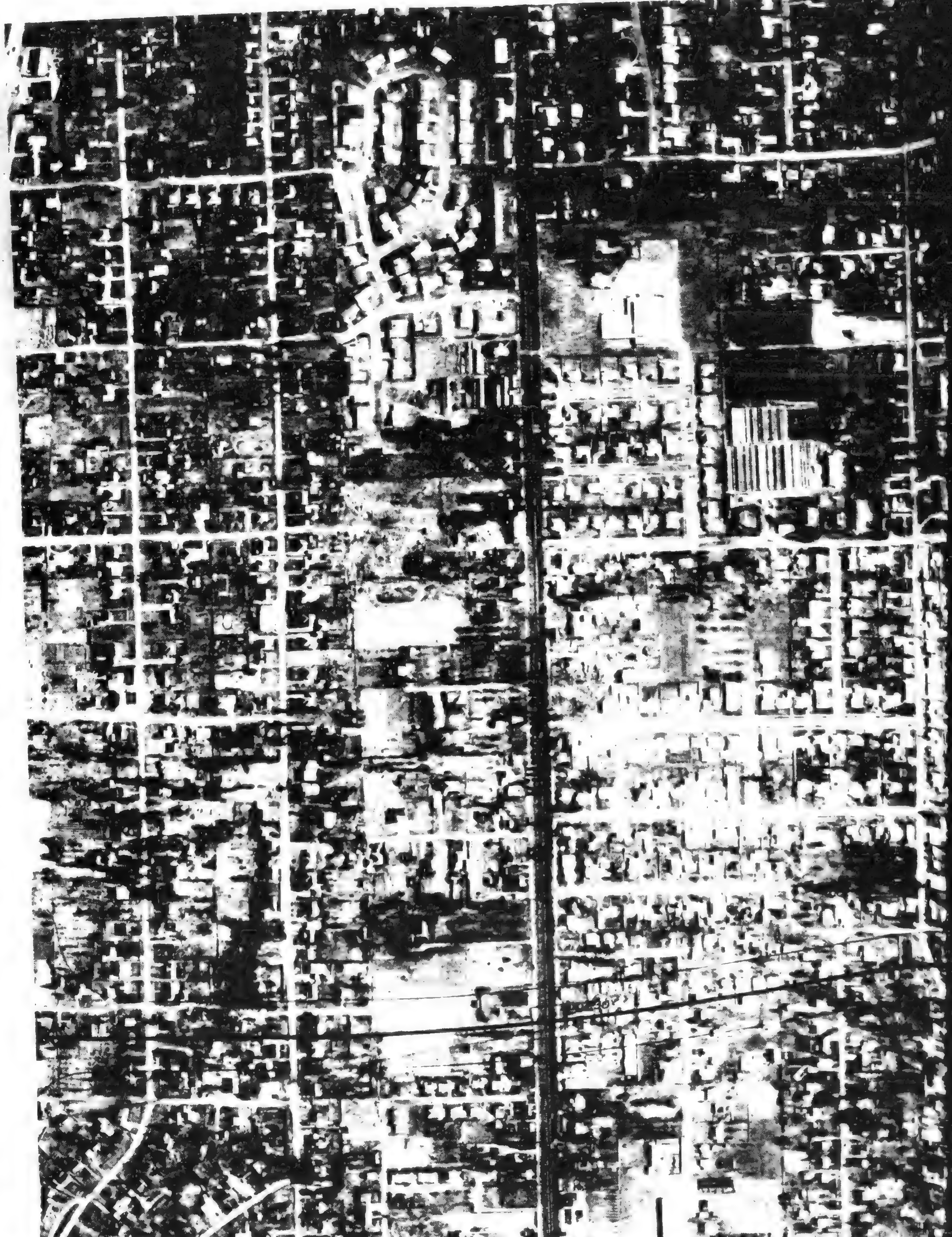

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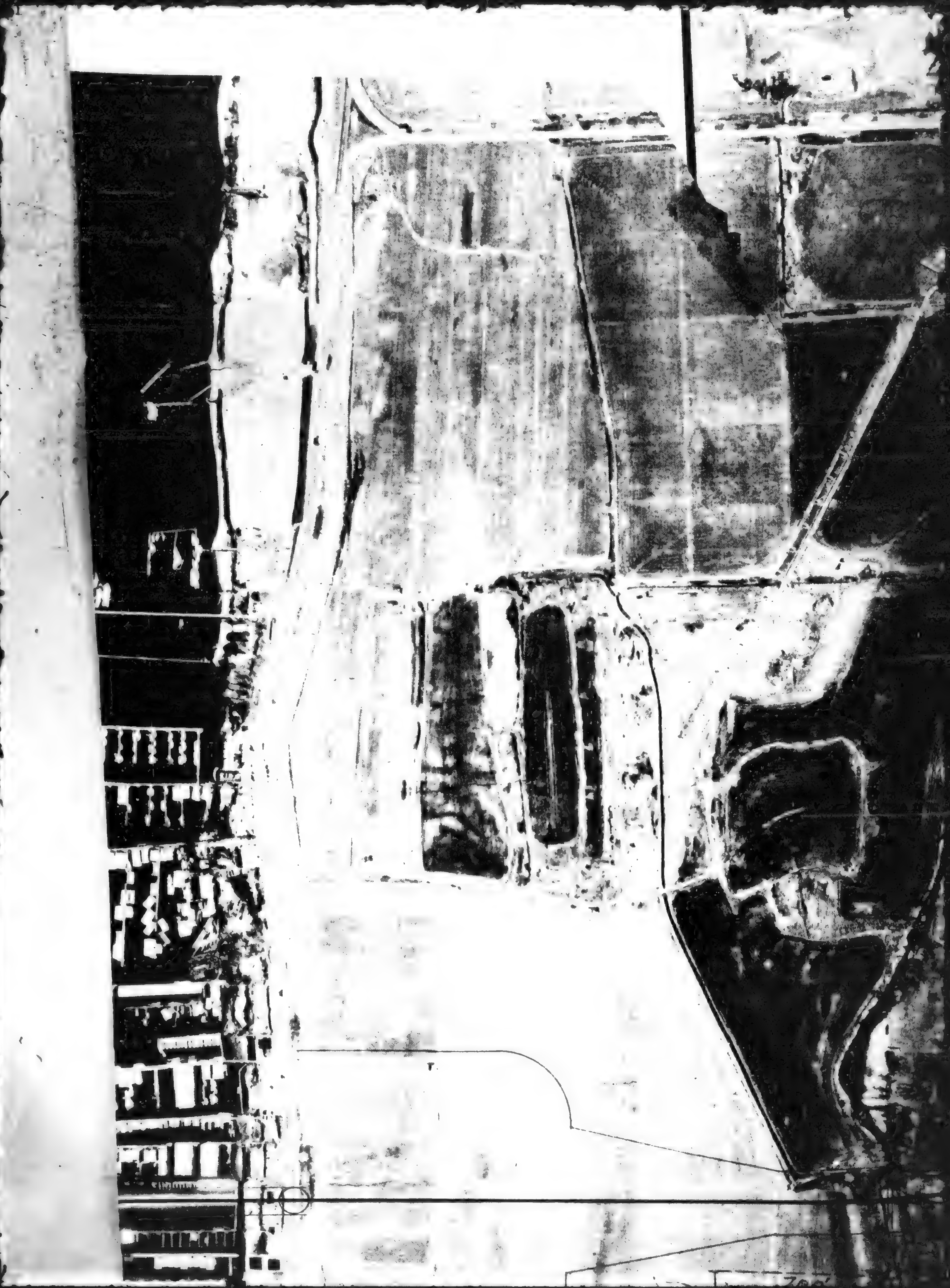
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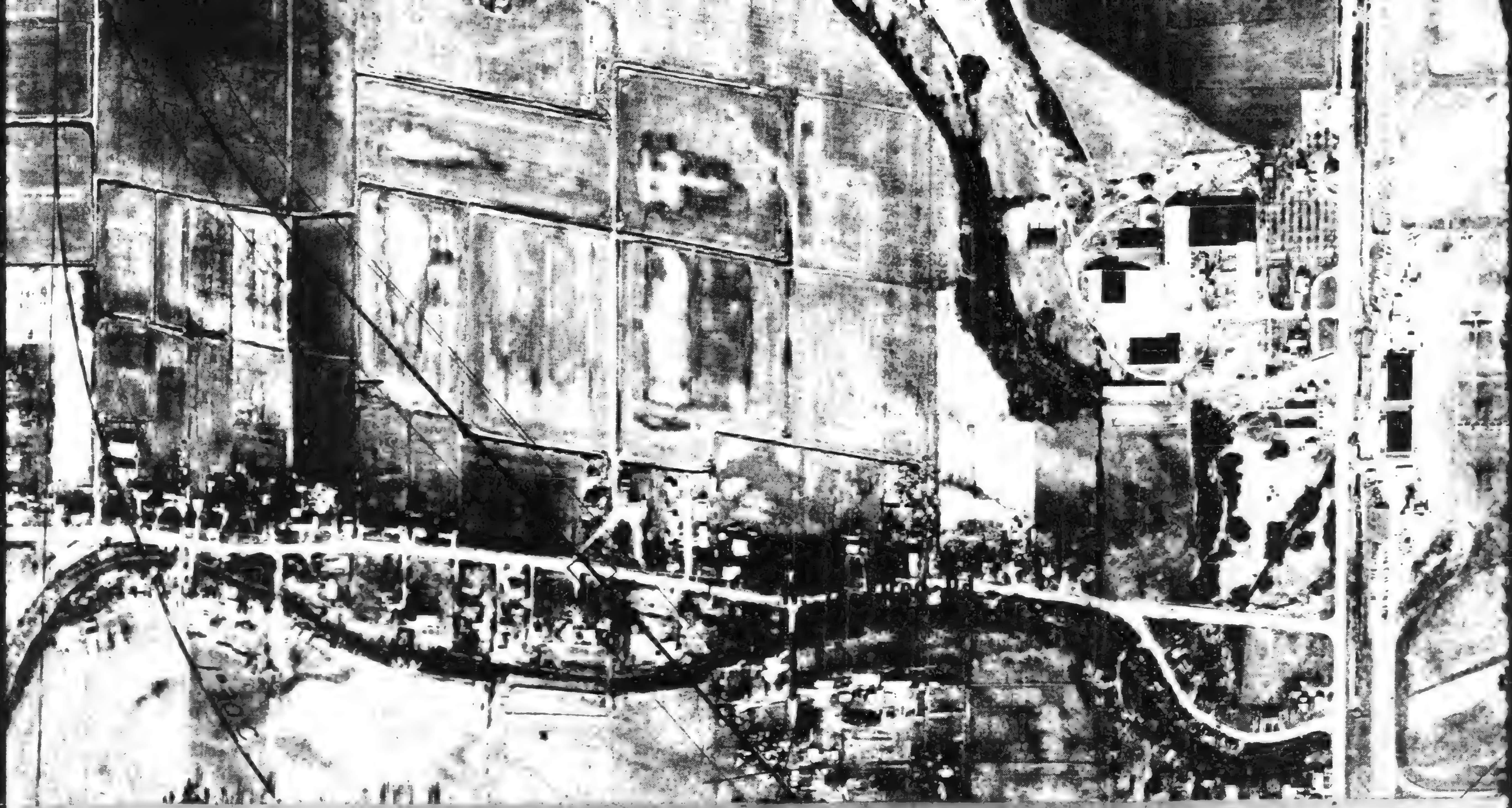

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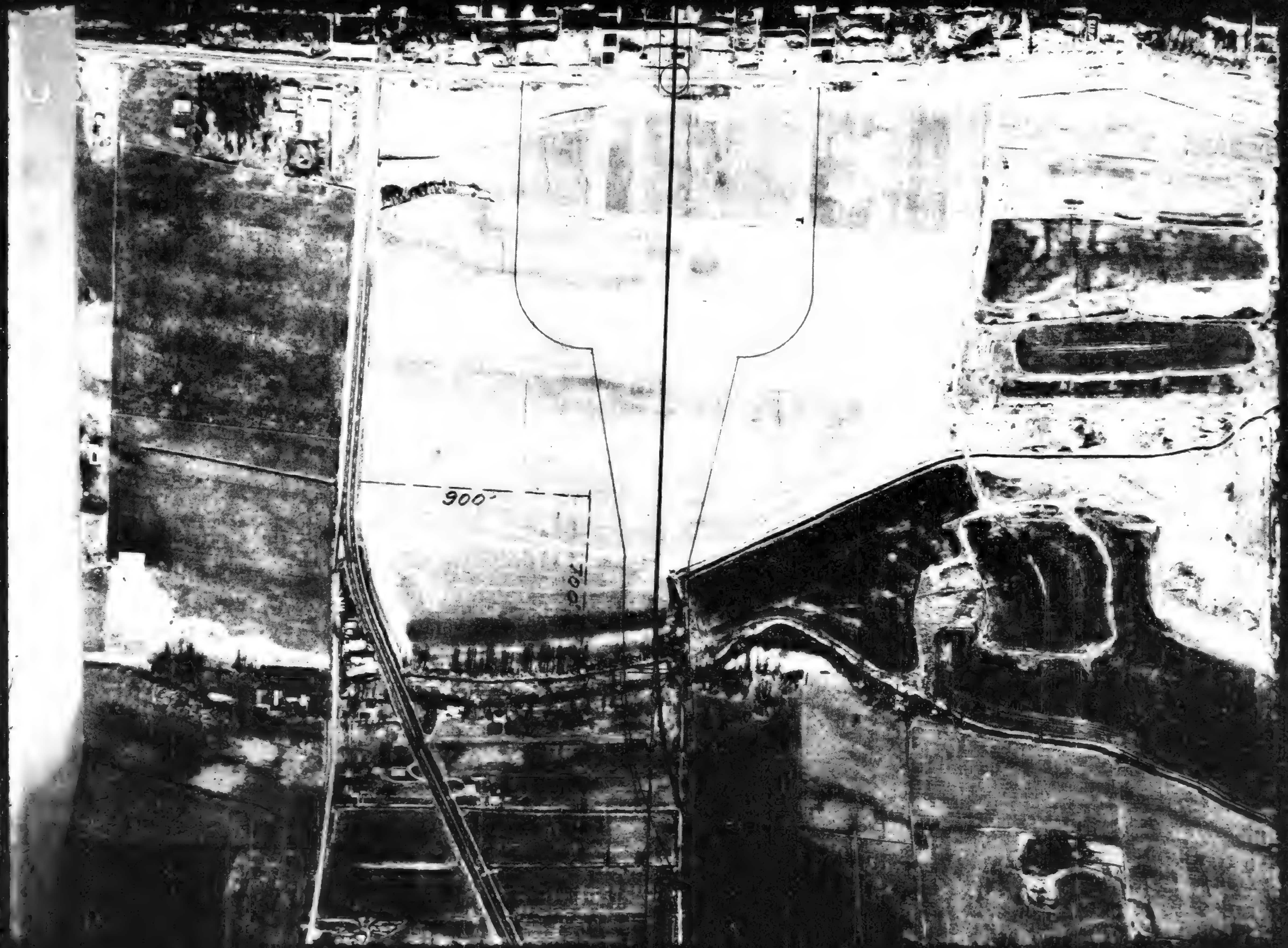
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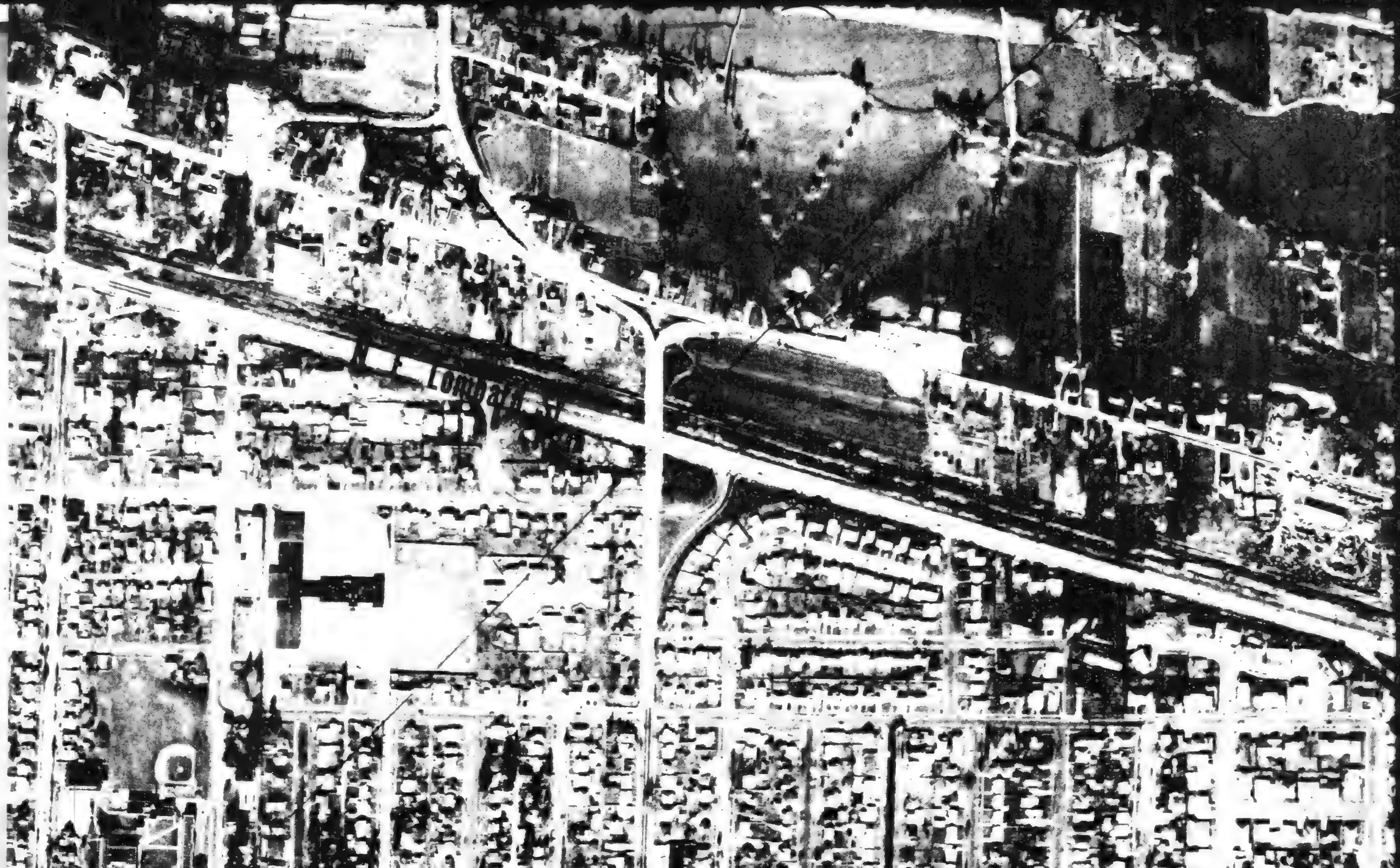
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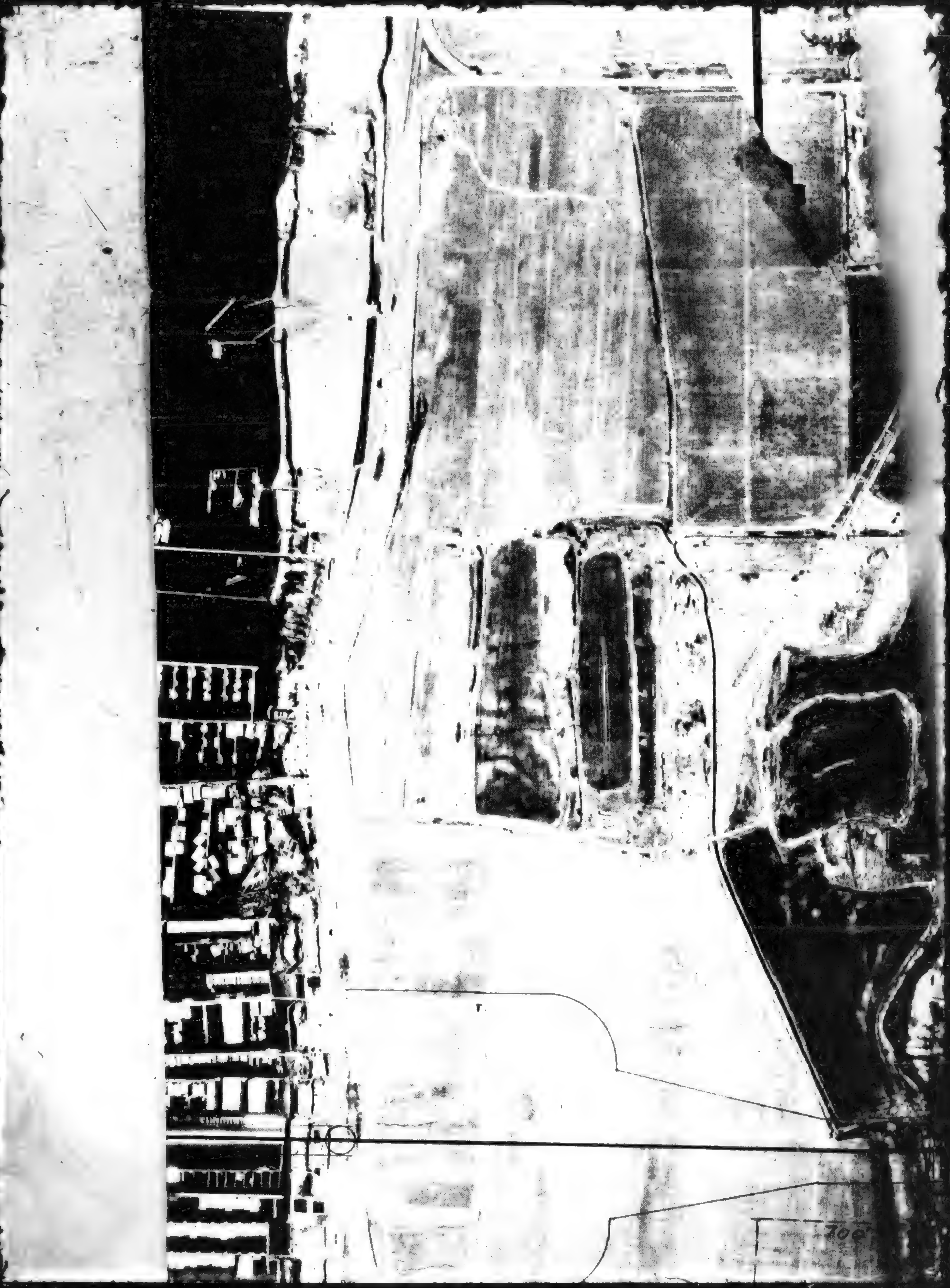

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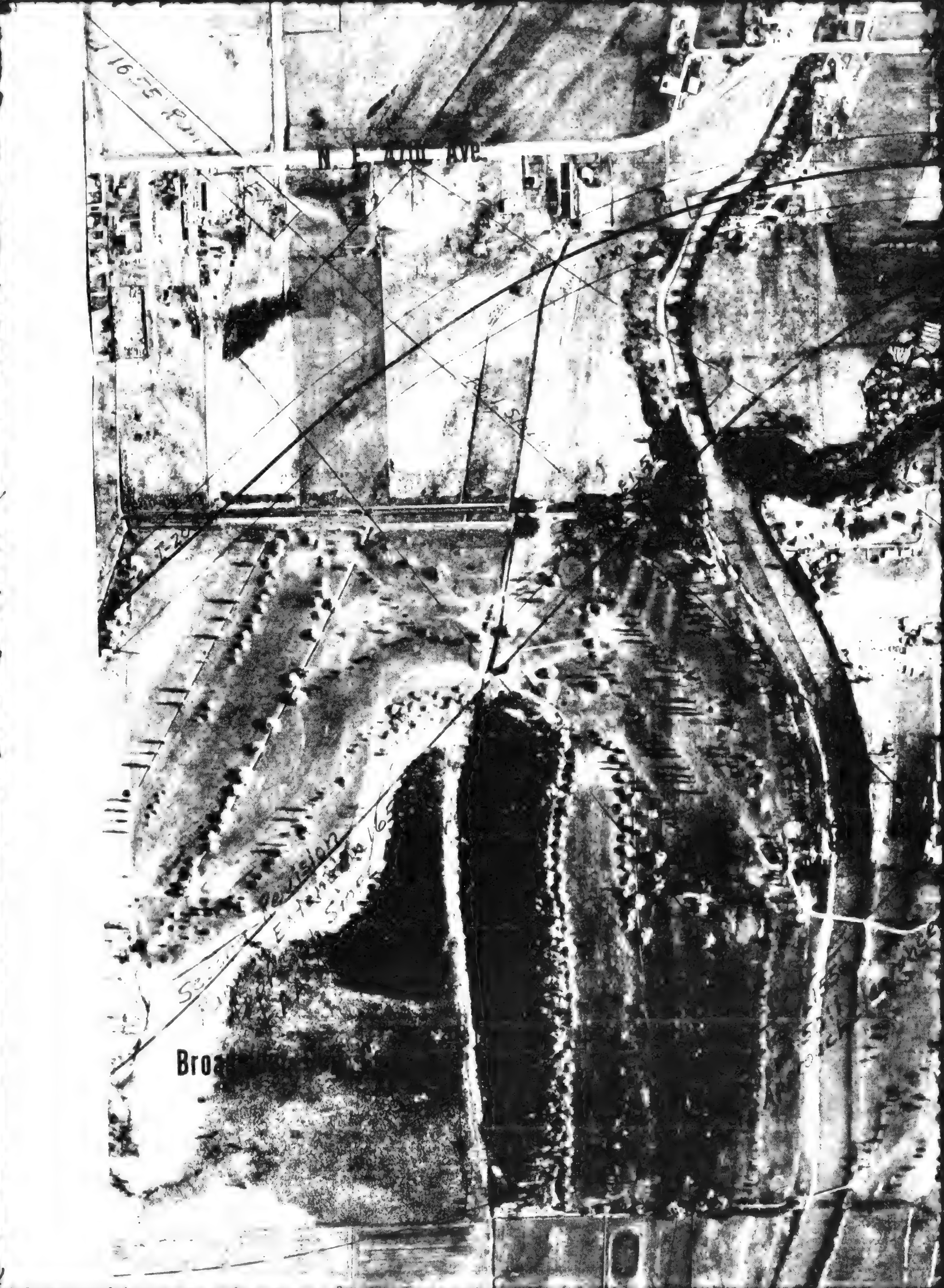
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N. E. 40th Ave
Extension
Broa

2D Ave

9705

. HIRSCH
M. KELL
S. RUSSELL
ROBERT B. WILSON

General Manager
GEORGE M. BALDWIN

Ass't General Manager
R. A. NEUMEISTER

Mgr., Aviation Dept.
J. V. FRYBERGER

Mgr., Industrial Development Dept.
L. E. ARNOLD, JR.

Mgr., Marine Dept.
A. J. HEINEMAN

Comptroller
E. W. BAUER

Mgr., Properties Dept.
C. H. COVER

Mgr., Research Planning and Inf.
W. S. DIRKER

Chief Engineer
R. F. DOW

Swan Island [illegible] 3529, Portland, Oregon 97208
Telephone 503-285-5271

In reply refer to:

NOTED
LLOYD P. SHAW

REFERRED TO
Shaw
BY DEPUTY STATE HIGHWAY ENGINEER

October 26, 1964

Mr. Forrest Cooper, Highway Engineer
State Highway Department
State of Oregon
Salem 10, Oregon

Subject: Trafficway Facilities Serving the Portland International Airport

Dear Mr. Cooper:

Attached herewith is a copy of a Port of Portland staff report titled "Portland International Airport Traffic Study", under date of October 22, 1964.

We are submitting this report to you with a request that the Oregon State Highway Department conduct a study of the present and future problems affecting the provision of adequate trafficway facilities needed to serve the airport and its immediate vicinity. Some specific questions which come to our minds include the following:

1. What type of prime traffic access will be provided between the route finally selected for the I-205 Freeway and Northeast Airport Way?
2. Which major east-west roads should be improved to furnish prime access to the airport?
3. What are the probabilities for bringing about major improvement to either the officially designated U.S. Route 30 Bypass or Northeast Columbia Boulevard?
4. What are your recommendations for improving the intersection between Northeast 82nd Avenue and Northeast Lombard Street?

5. What roadways could feasibly be designated as defense connector routes, particularly to the Portland Air Force Base?

6. How can a better connection between southbound 82nd Avenue and westbound Banfield Freeway be provided?

It is suggested that, after you review the attached study and analyze our above questions, an early meeting between our two agencies be held to resolve this matter.

Very truly yours,

THE PORT OF PORTLAND

GEORGE M. BALDWIN,
General Manager

Attachment

CC: Commissioner Wm. A. Bowes
Department of Public Works
City of Portland

Paul C. Northrop
County Roadmaster
Multnomah County

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OCT 2 [illegible]
STATE [illegible]

RECEIVED
OCT 29 1964
OREGON
STATE HIGHWAY COMMISSION

OCT 26 1964

October 26, 1964

Mr. Erskine Wood
Wood, Wood, Tatum, Mosser & Brooke
1310 Yeon Building
Portland, Oregon 97204

Dear Mr. Wood:

As you requested, I am enclosing a sketch map showing the easterly alternate of this Department's report on the Interstate 205 route. This line represents only a general route or avenue and does not necessarily indicate the final location in case this scheme should be approved. There is considerable flexibility as to some features and nothing can be said to be final until rigorous field surveys have been made.

An exact location would have to be determined by the Washington Department of Highways after both that organization and the Oregon Highway Commission have approved general routes.

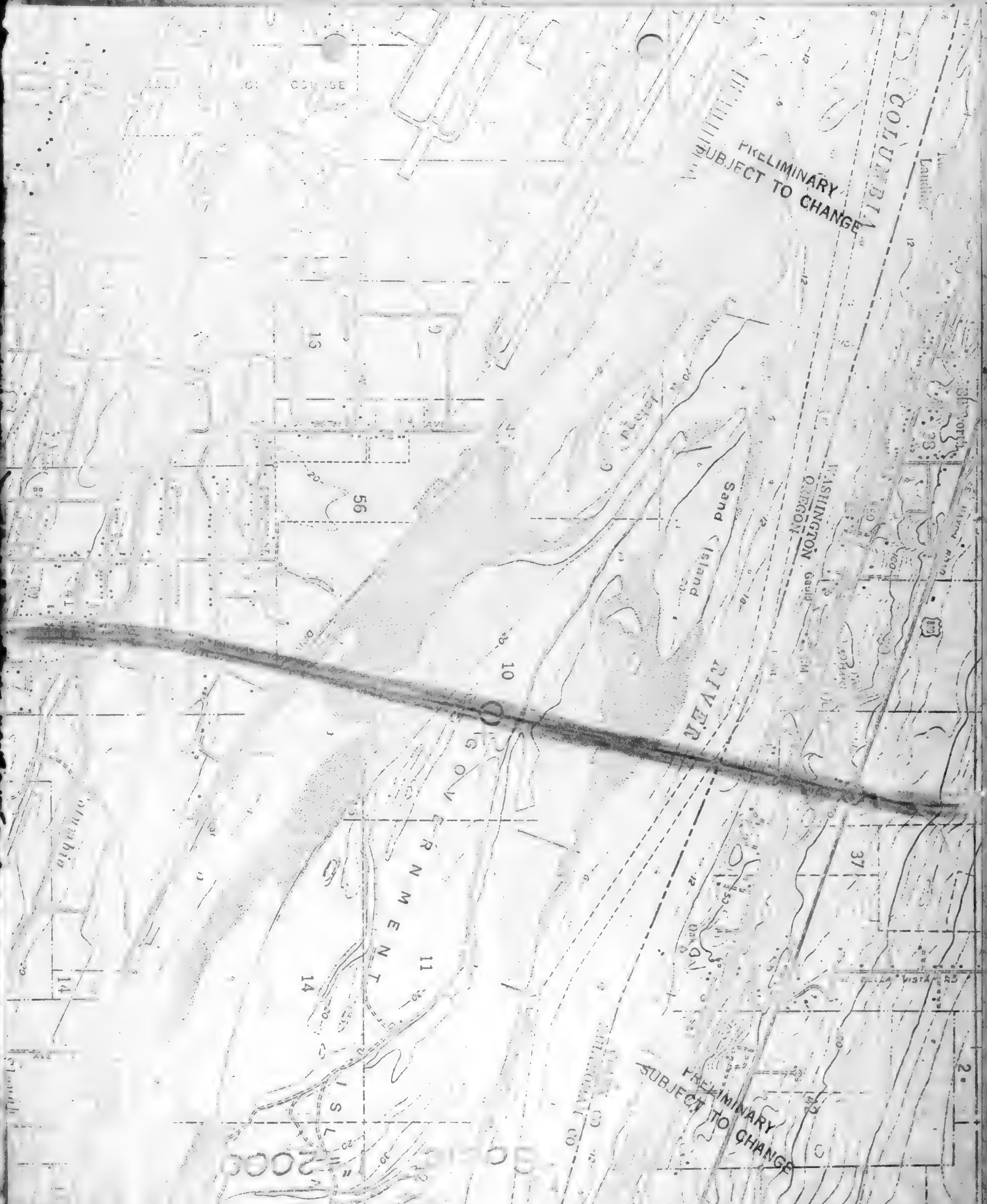
Very truly yours,

Forrest Cooper
State Highway Engineer

By

R. L. Porter
Deputy State Highway Engineer

RLP:ms
enc.
cc Mr. Forrest Cooper
Mr. Victor D. Wolfe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Columbia
BELLA VISTA
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PRELIMINARY
SUBJECT TO CHANGE

WOOD, WOOD, TATUM, MOSSER & BROOKE
ATTORNEYS AND COUNSELORS
1310 YEON BUILDING
PORTLAND, OREGON 97204

ERSKINE WOOD
ERSKINE B. WOOD
LOFTON L. TATUM
JOHN D. MOSSER
JOHN R. BROOKE
JOHN G. HOLDEN
RICHARD WM. DAVIS

MARK M. MATTHIESSEN
(1911-19[illegible])

CABLE ADDRESS "LINWOOD"
TELEPHONE 228-6241
AREA CODE 503

October 21, 1964

SUBJECT: Your I-205 Freeway Report #64-5

Mr. R. L. Porter
Deputy State Highway Engineer
State Highway Department
Salem, Oregon 97310

Dear Mr. Porter:

Thank you for your letter of the 16th, enclosing copy of the Report. I understood from our conversation that you were also going to send me a copy of the map, and if it is still possible, would appreciate your doing this.

The location of the Washington end of the Bridge so close to our property, or possibly on it, is of great concern to us, so that 100 yards one way or the other would be important. Your statement that the Bridge would be about one mile east of Ellsworth and in close proximity to the Fish Hatchery leaves the point somewhat vague, and I was wondering whether surveys had continued to such a stage that the location could be pin-pointed exactly.

Of course I have noticed in the papers the many new objections that have been raised by those who participated in the Advisory Report, and I rather take it that the final location is still somewhat in doubt.

If you could ever spare me the time for an hour, I would like to drive over to our place on the Columbia River and let you see the actual situation.

Very truly yours,

Erskine Wood

EW:W

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OCT 23 1964
OREGON
STATE HIGHWAY COMMISSION

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OCT 16 1964
FOR FILING

October 16, 1964

Mr. Erskine Wood
Wood, Wood, Tatum, Mosser & Brooke
1310 Yeon Building
Portland, Oregon

Dear Mr. Wood:

This is to follow up our discussion on Wednesday relative to the position of Interstate 205 at its intersection with the Evergreen Highway between Vancouver and Camas.

It appears that the crossing would be about one mile easterly of Ellsworth and in close proximity to the existing fish hatchery.

Enclosed is a copy of this Department's I-205 Freeway Report No. 64-5.

Very truly yours,

Forrest Cooper
State Highway Engineer

By

R. L. Porter
Deputy State Highway Engineer

RLP:ms
enc.
cc Mr. Forrest Cooper
Mr. Tom Edwards
Mr. Victor D. Wolfe

RECEIVED
OCT 8 - 1964

FOR FILING

Salem, Oregon
October 6, 1964

Mr. F. D. Morgan
Construction Engineer

Portland International Airport
Approach Surface
I-205 West Location
Multnomah County

Attention: D. J. Barbee

The attached correspondence from Port of Portland presents a map showing latest approach concept at the airport. Please have this evaluated and the results shown on one of our maps or mosaics.

Lloyd P. Shaw
Assistant State Highway Engineer

LPS:ajw

Attachments

cc Forrest Cooper
R. L. Porter

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DENNIS J. LINDSAY
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General Manager
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Mgr., Aviation Dept.
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Comptroller
E. W. BAUER
Mgr., Properties Dept.
C. H. COVER
Mgr., Research Planning and Inf.
W. S. DIRKER
Chief Engineer
R. F. DOW

THE PORT OF PORTLAND
Swan Island, P.O. Box 3529, Portland, Oregon 97208
Telephone 503-285-5271

In reply refer to:
ENG-RFD

October 1, 1964

Mr. Lloyd P. Shaw
Assistant State Highway Engineer
State Highway Department
Salem, Oregon

Dear Mr. Shaw:

SUBJECT: West Alternate Interstate 205, Multnomah County

Reference is made to your letter dated September 4, 1964, which transmitted an aerial mosaic on which was shown a possible alternate location for your westerly route of Interstate 205. This alternate location was made in an effort to clear the 50:1 approach surface for the 2155' proposed Runway 2 extension shown on our drawing dated August 21, 1964, transmitted with my letter dated August 24, 1964.

Further study has been given to the airlines' recommendation that Runway 2-20 be extended to meet their cross-wind landing requirements. It is now felt that the maximum extension to the southwest will be approximately 1655' and that a non-instrument approach surface of 40:1 will be adequate in lieu of the 2155' extension and the 50:1 instrument approach surface previously indicated.

It is noted that the location of the alternate route shown on your aerial mosaic was determined by the use of the military approach surface requirements at the southwest end of Runway 2 proposed extension but that the bridge location near 33rd was determined by the application, to Runway 10R proposed extension, of only the Federal Aviation Agency approach surface requirements. Runway 10R is heavily used by the commercial and military planes, both jet and propeller driven. Runway 2 is rarely used by the military jet aircraft, and it is not expected that the proposed extension would alter this use.

The application of the military approach surface requirement on the Portland International Airport runways would not be a requirement of the

Port of Portland based on civil aviation needs. A copy of this letter is being sent to Colonel Cullen A. Brannon, Jr., USAF 337th Fighter Group, Portland International Airport, asking that the Port be contacted if the Air Force feels that the military approach surface requirements are necessary for Runways 10R and 2.

Enclosed please find two copies of Drawging No. PA 64-7-1/1 dated 9-24-64 showing the 1655' extension to Runway 2 and the 40:1 FAA approach surface slope.

I hope this information will be of some help in locating the proposed freeway, and we would appreciate receiving copies of any changes you make in the vicinity of the Portland International Airport.

Very truly yours,

THE PORT OF PORTLAND

Robert F Dow
ROBERT F. DOW
Chief Engineer

RFD/mb
Enclosures

cc: Colonel Cullen A. Brannon, Jr.
Enc.

VED
1964
FICE OF
HIGHWAY ENGINEER

RECEIVED
OCT - 5 1964
OREGON
STATE HIGHWAY COMMISSION

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FORM E-123X 50M 12-63

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SEP 23 1964
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MEDFORD
KENNETH N. FRIDLEY, MEMBER
WASCO
DAVID B. SIMPSON, MEMBER
PORTLAND

STATE OF OREGON
STATE HIGHWAY DEPARTMENT
SALEM 97310

September 18, 1964

Mr. Robert F. Dow
Chief Engineer
Port of Portland
P. O. Box 3527
Portland, Oregon 97208

RE: West Alternate I-205
Multnomah County

Dear Sir:

Some three weeks ago we sent you an aerial mosaic on which was shown a possible alternate location for our westerly route of I-205 to avoid your proposed extension to Runway 2 of the airport.

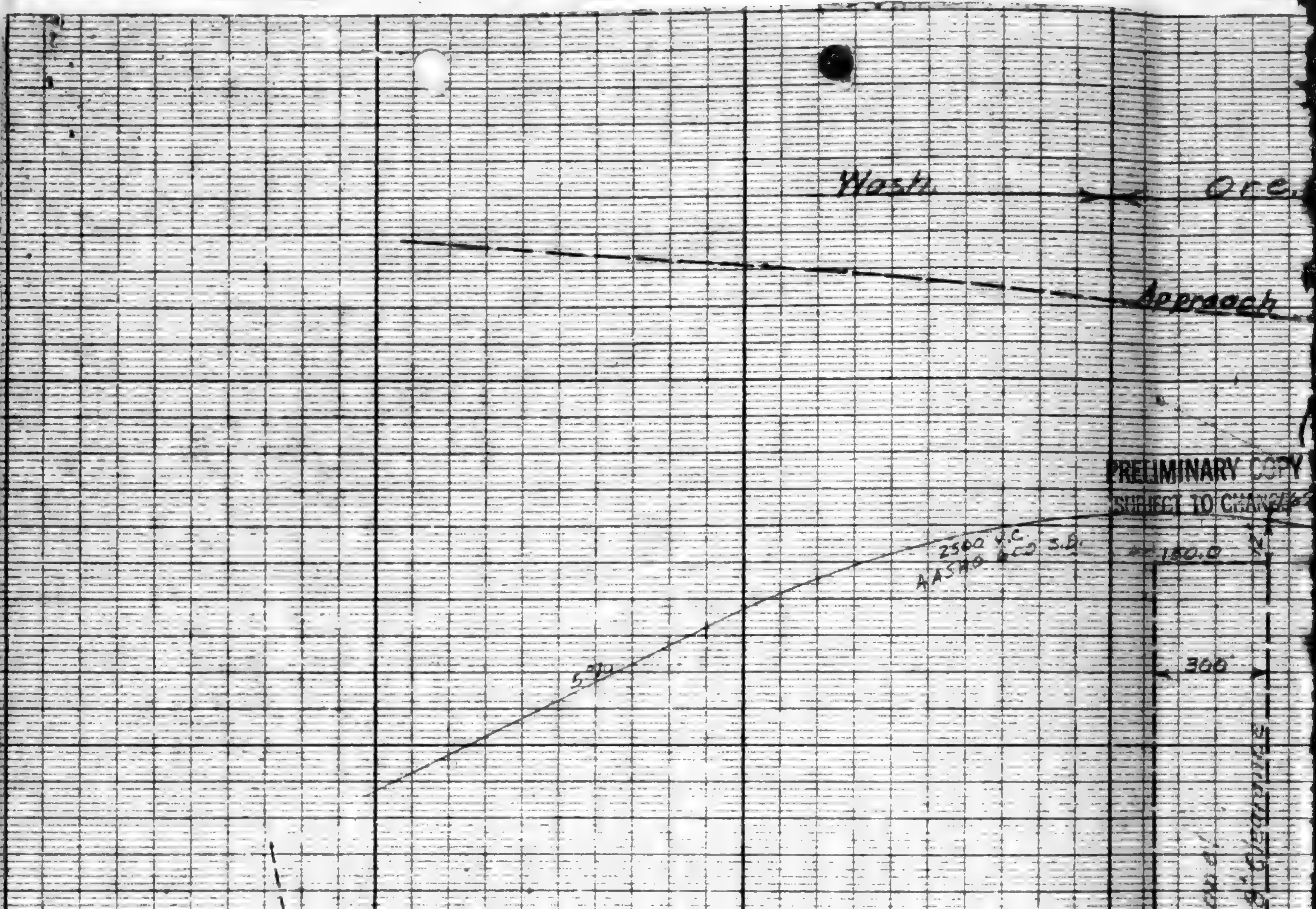
Enclosed herewith as requested of Mr. L. P. Shaw is a preliminary profile through this area. Runway 2 extension would cross in the neighborhood of our Station 110.

Very truly yours,

F. D. Morgan
Construction Engineer

By
DN Stoudenmeyer
Donald N. Stoudenmeyer
Assistant Urban Engineer

Enc.
DNS:fp
cc L. P. Shaw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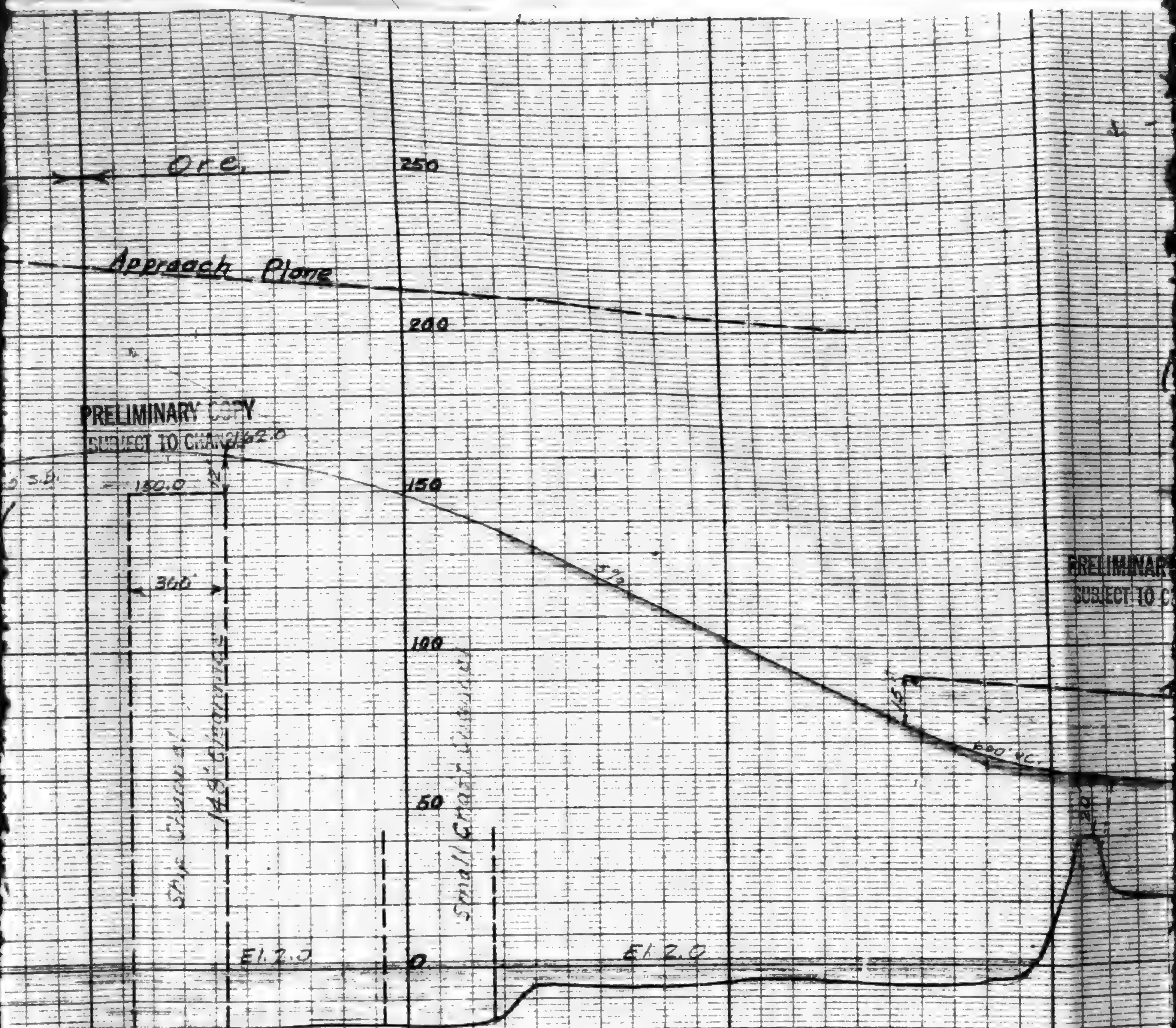
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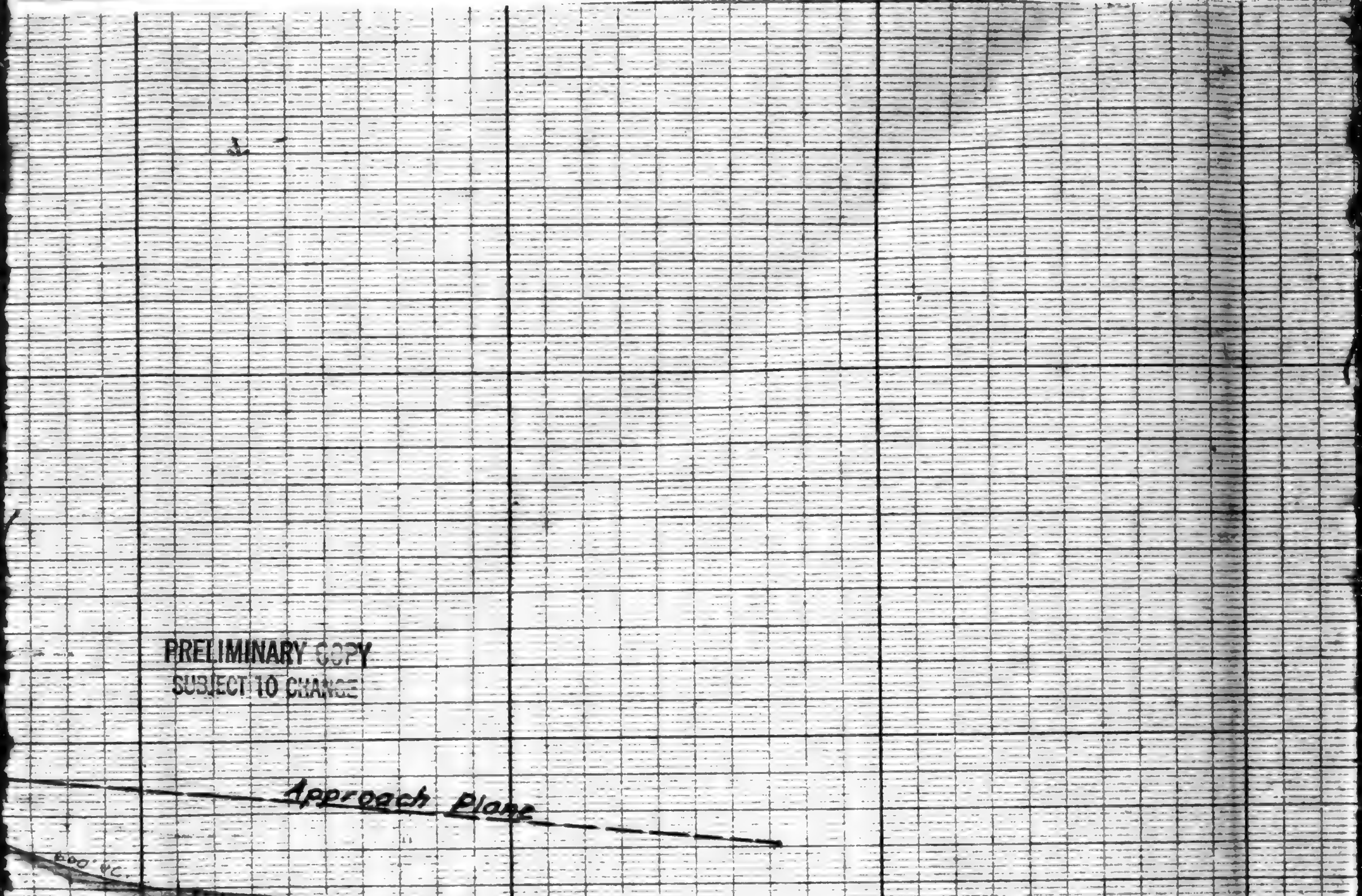

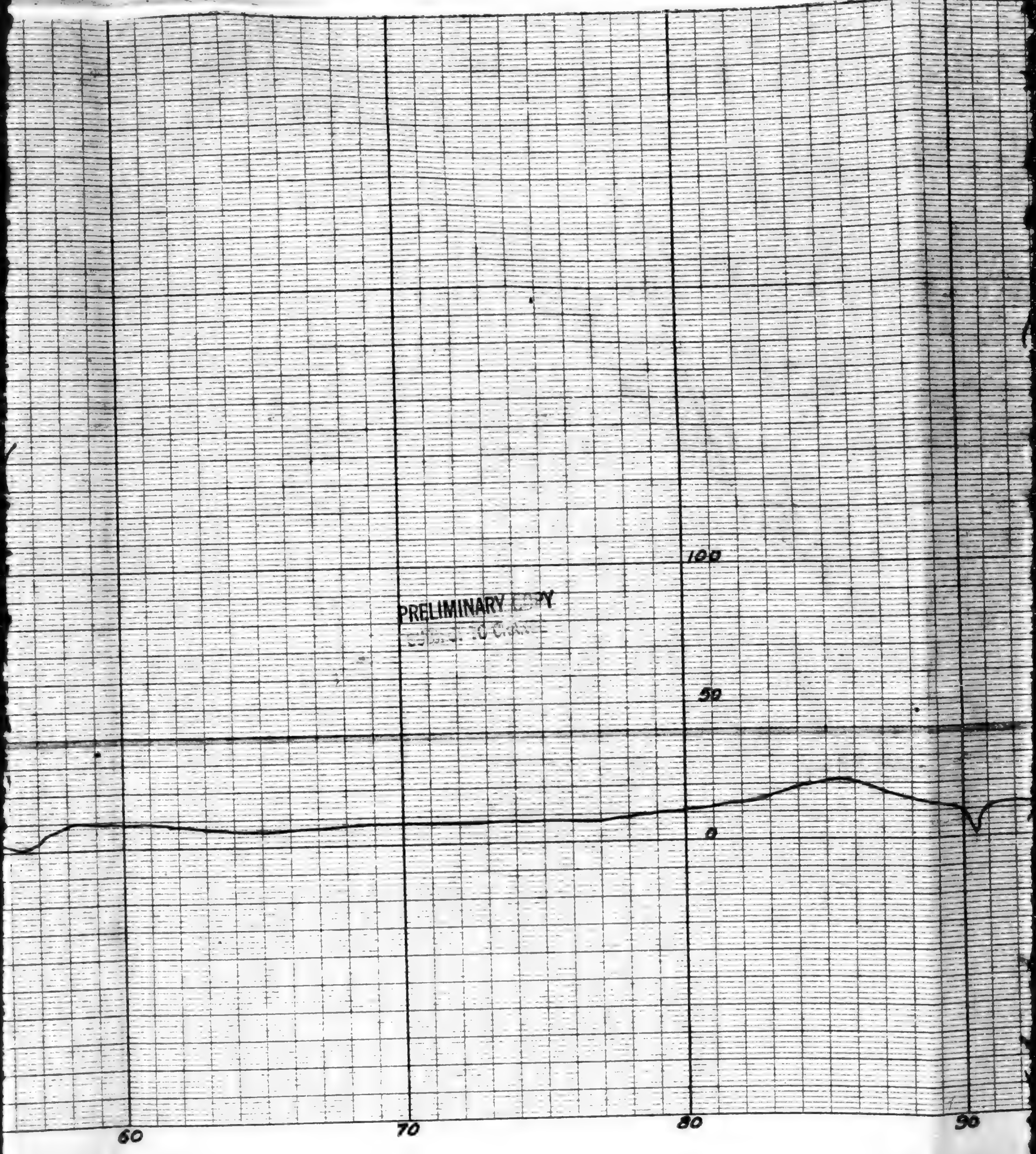

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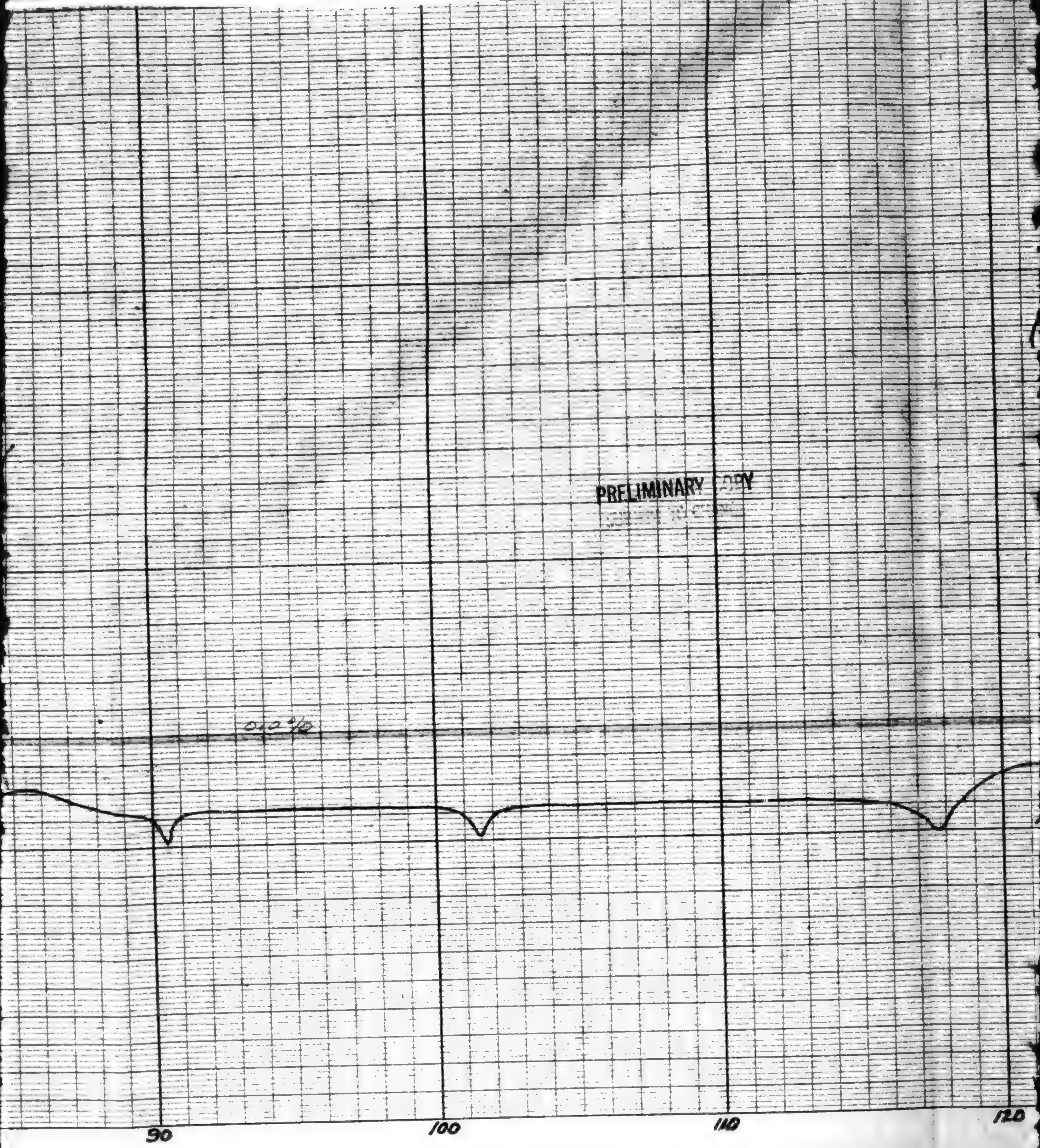

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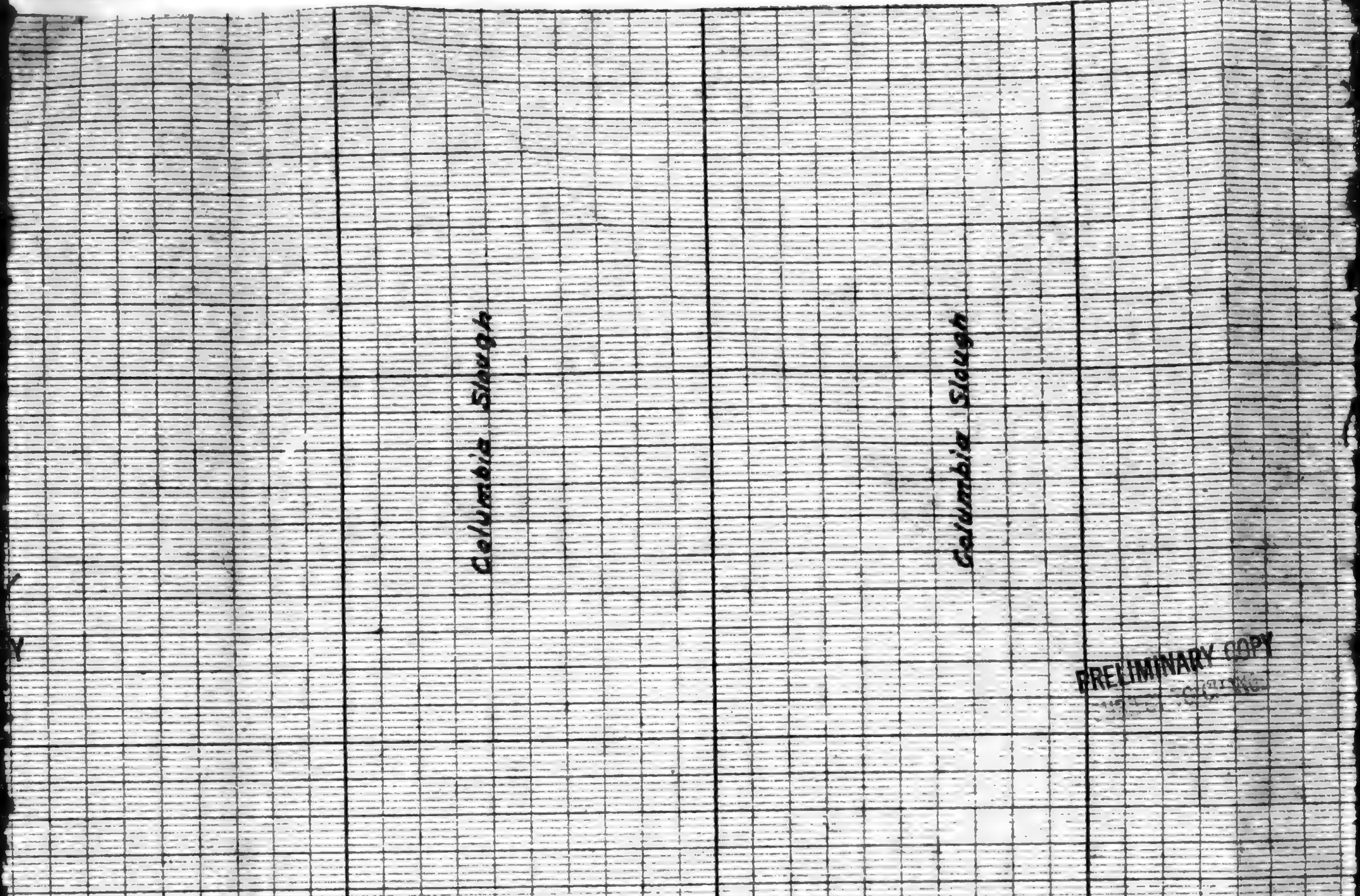

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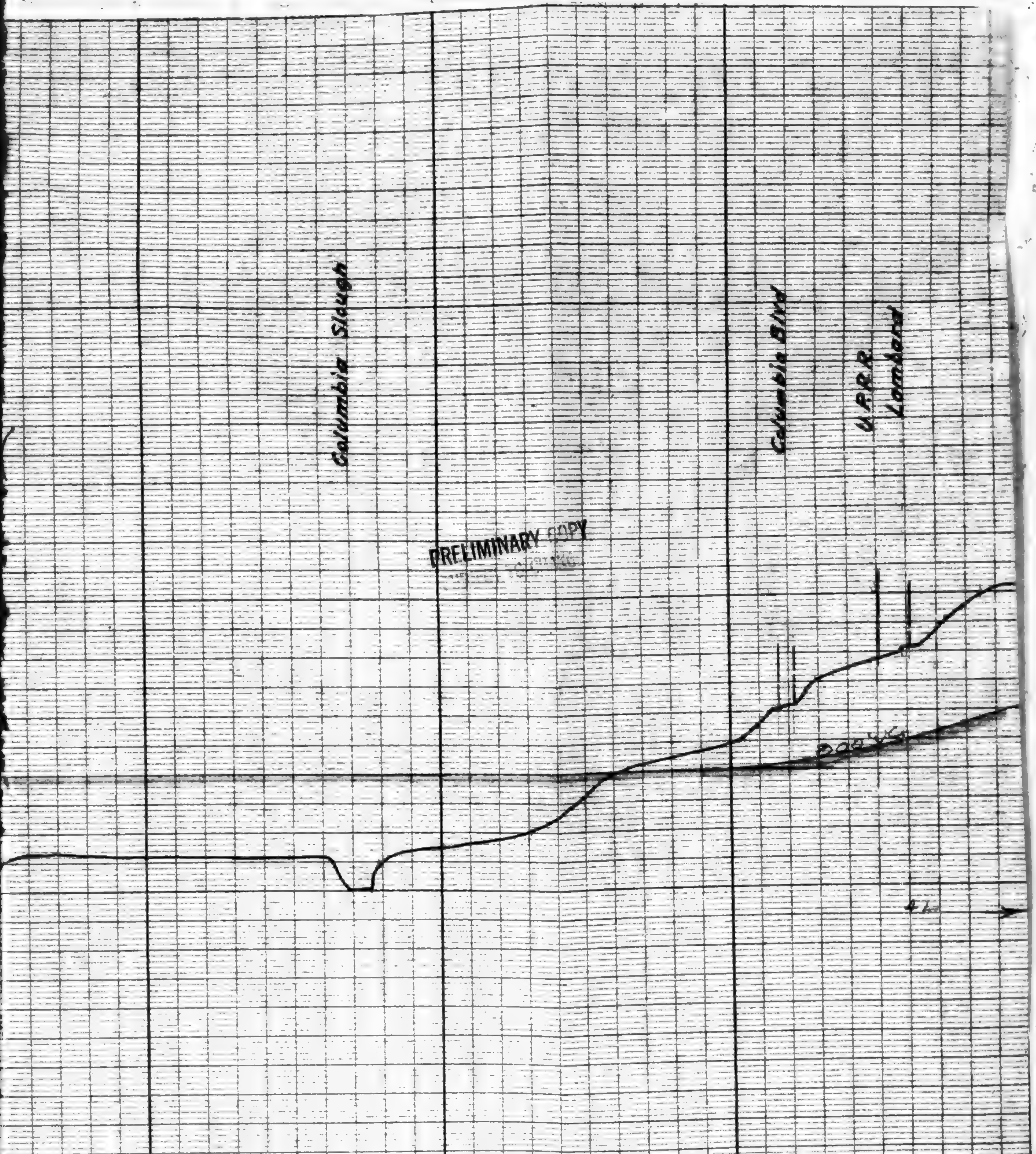

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RECEIVED
SEP 4 - 1964
FOR FILING

September 4, 1964

Mr. Robert F. Dow, Chief Engineer
Port of Portland
Swan Island
Post Office Box 3529
Portland, Oregon 97208

Re: West Alternate Interstate 205
Multnomah County

Your Reference: ENG-RFD

Dear Mr. Dow:

Enclosed is an aerial mosaic on which is shown a possible alternate location for our westerly route of Interstate 205. This would clear your proposed extension of Runway 2 which is also shown on the sheet.

If this westerly alternate is selected as the Interstate 205 route, it would seem that no hardship will be involved in avoiding your runway requirements.

Very truly yours,

Forrest Cooper
State Highway Engineer

By

Lloyd F. Shaw
Assistant State Highway Engineer

Enclosure

cc Forrest Cooper
R. L. Porter
F. D. Morgan

DNS:jp: ajw

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C. H. COVER
*Director, Research Planning and Inf.*
W. S. DIRKER
*Chief Engineer*
R. F. DOW

THE PORT OF PORTLAND
Swan Island, P.O. Box 3529, Portland, Oregon 97208

In reply refer to:
**ENG-RFD**

August 24, 1964

CONSTRUCTION DIVISION
AUG 25 1964

Oregon State Highway Department
Salem, Oregon

Attention: A. D. Olson

Gentlement:

SUBJECT: Proposed Runway Extensions,
Portland International Airport

Enclosed please find three copies each of the Port's proposed plans for runway extensions at the Portland International Airport.

It is hoped that these sketches showing proposed runway extensions for Runway 10R and Runway 2 will be of some help in your location of the proposed freeway.

As discussed with Mr. Bandy on August 20, 1964, the Port would be interested in receiving information pertaining to any changes you may make in the alignment in the vicinity of Runway 2 extension.

If we can be of any additional help, do not hesitate to call.

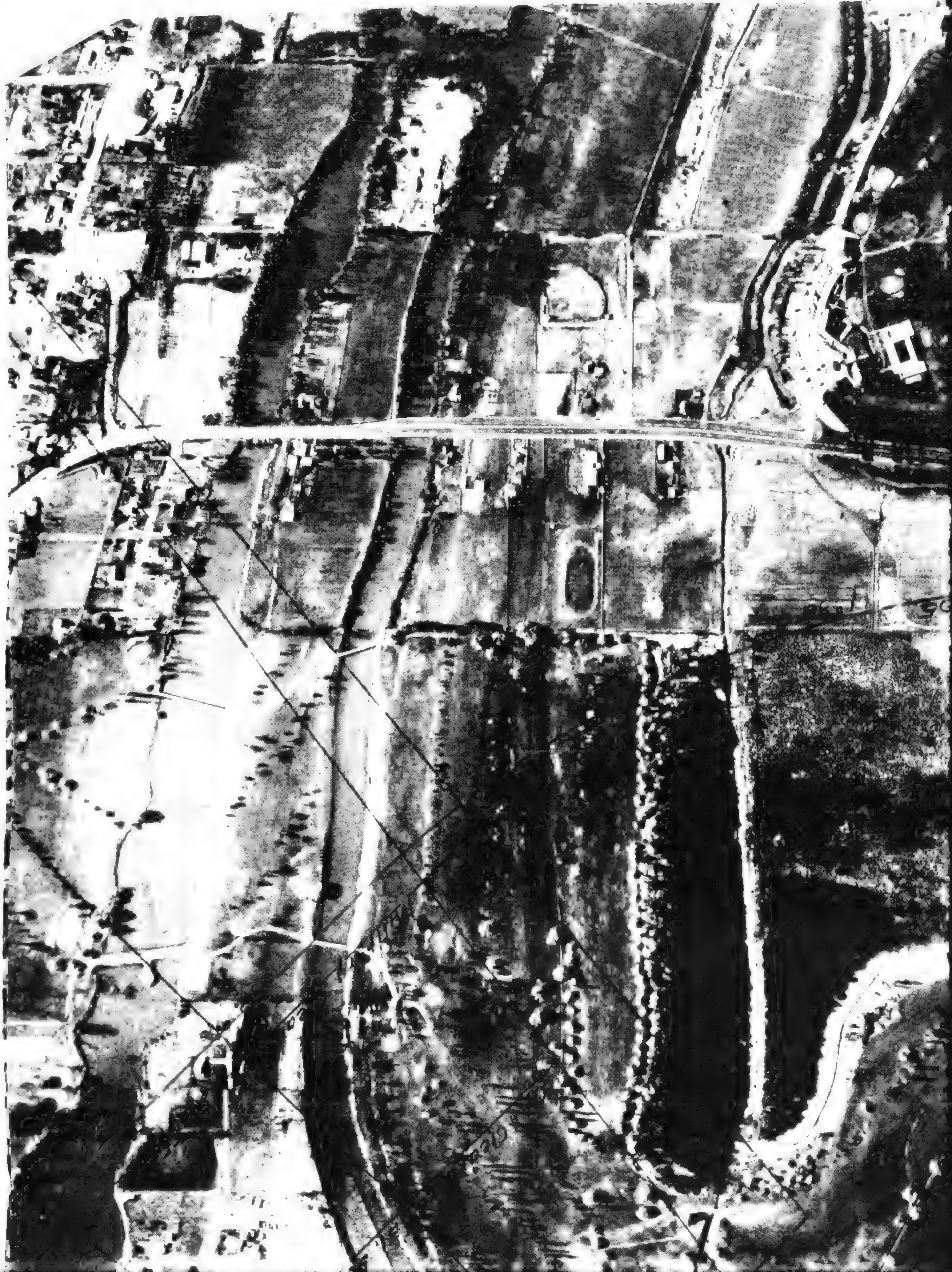
Very truly yours,

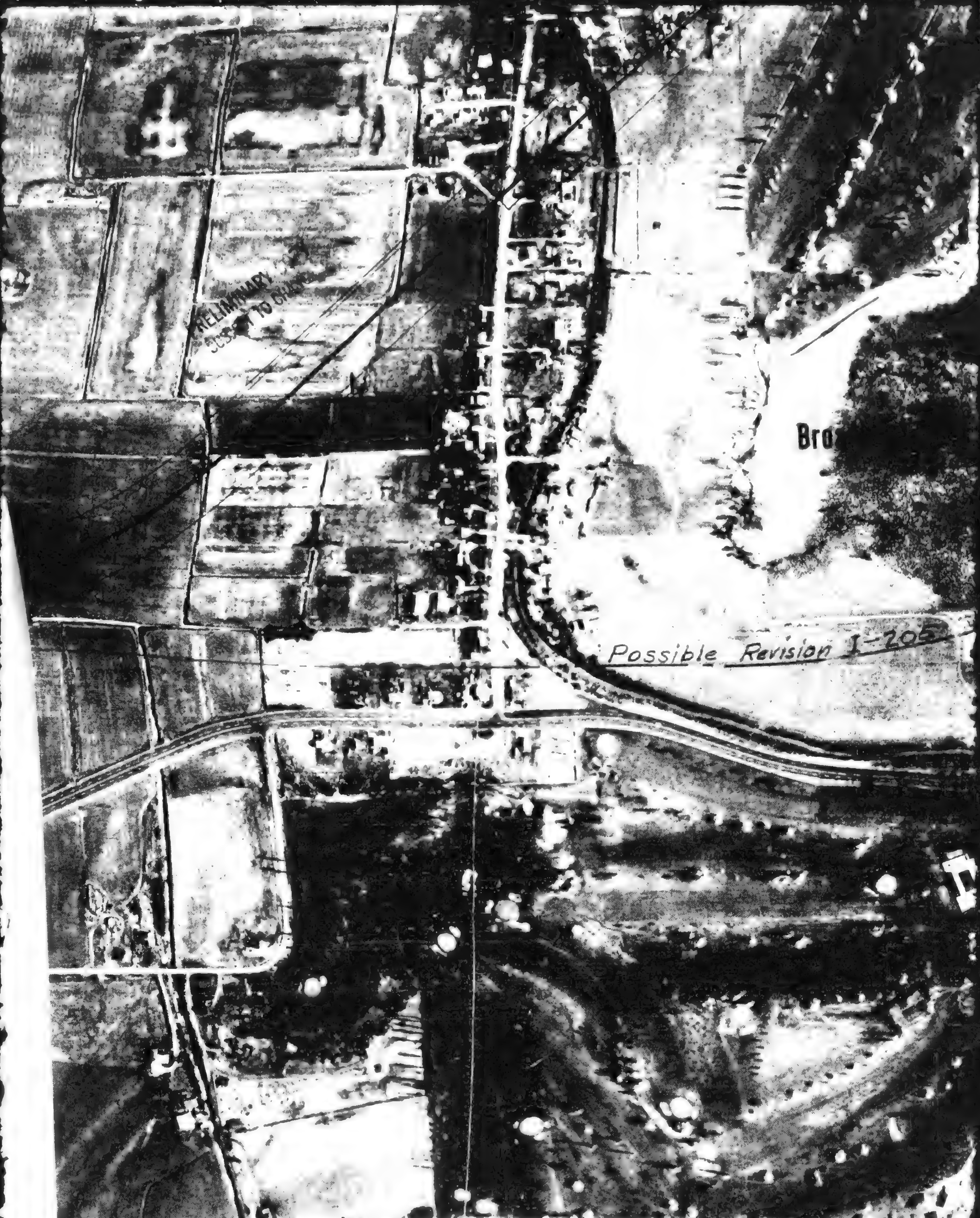
THE PORT OF PORTLAND

for ROBERT F. DOW
Chief Engineer

RFD/mb
Enclosures

Encl. Maps in Urban File

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Possible Revision I-205
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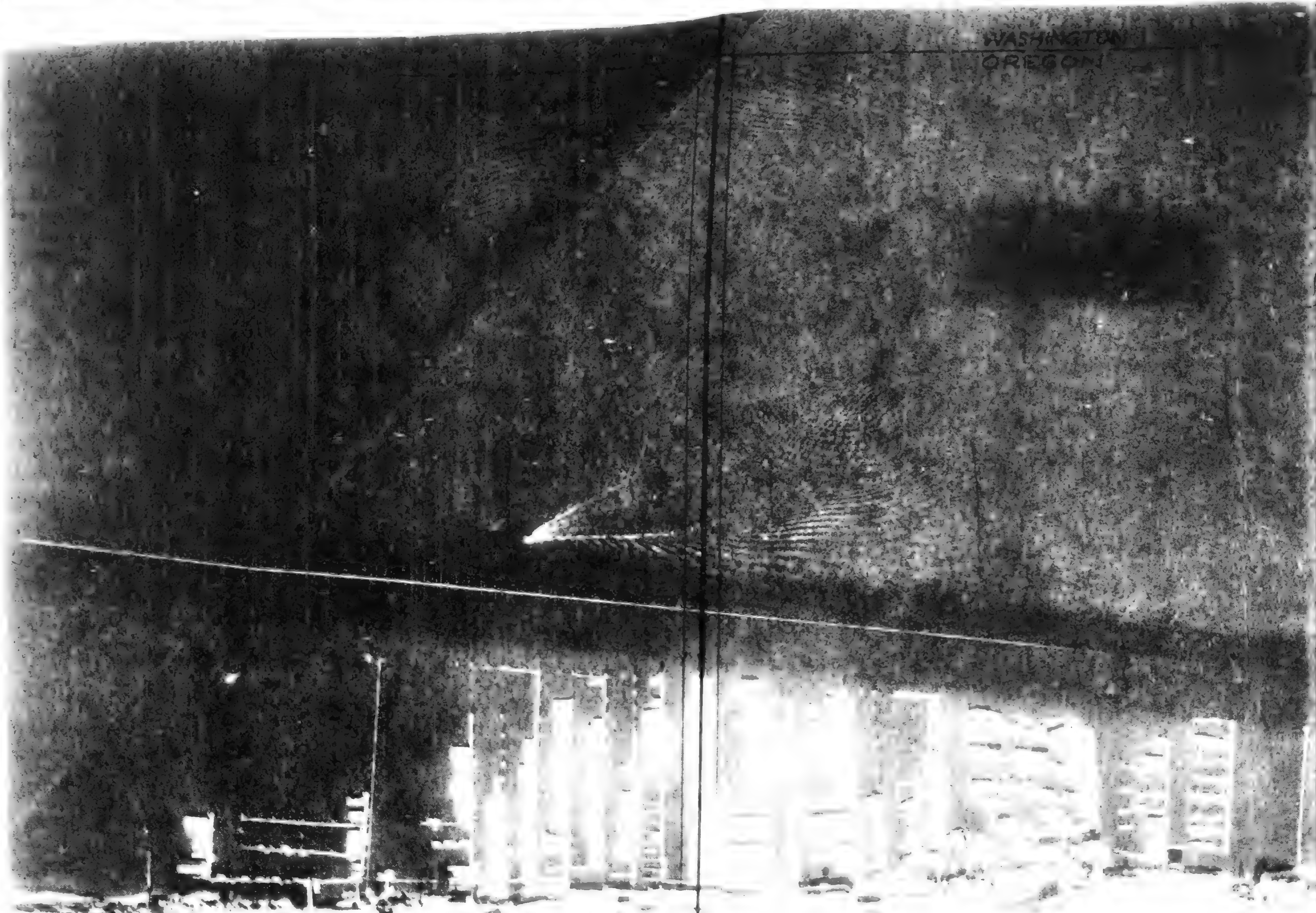
WASHINGTON
OREGON

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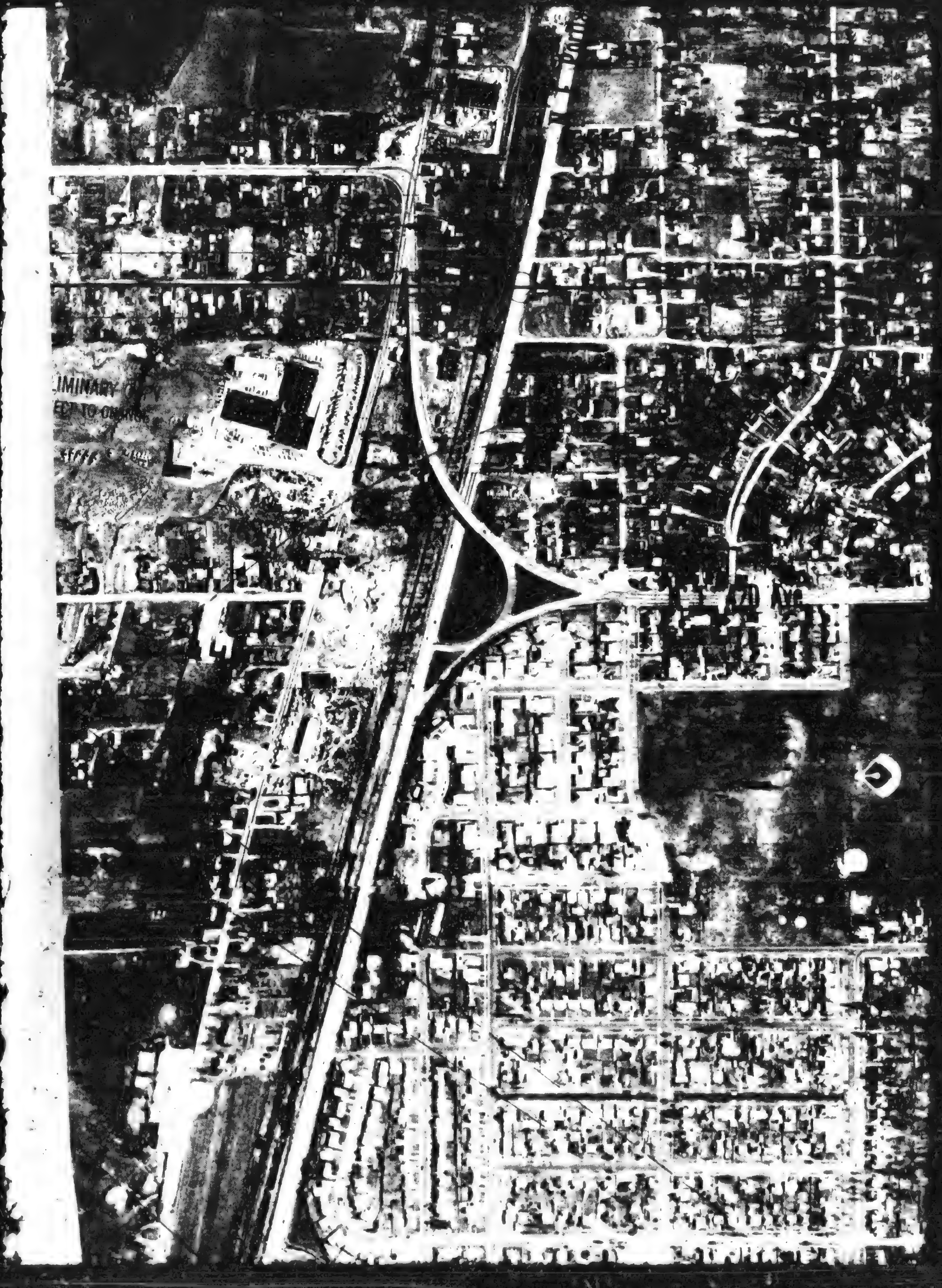
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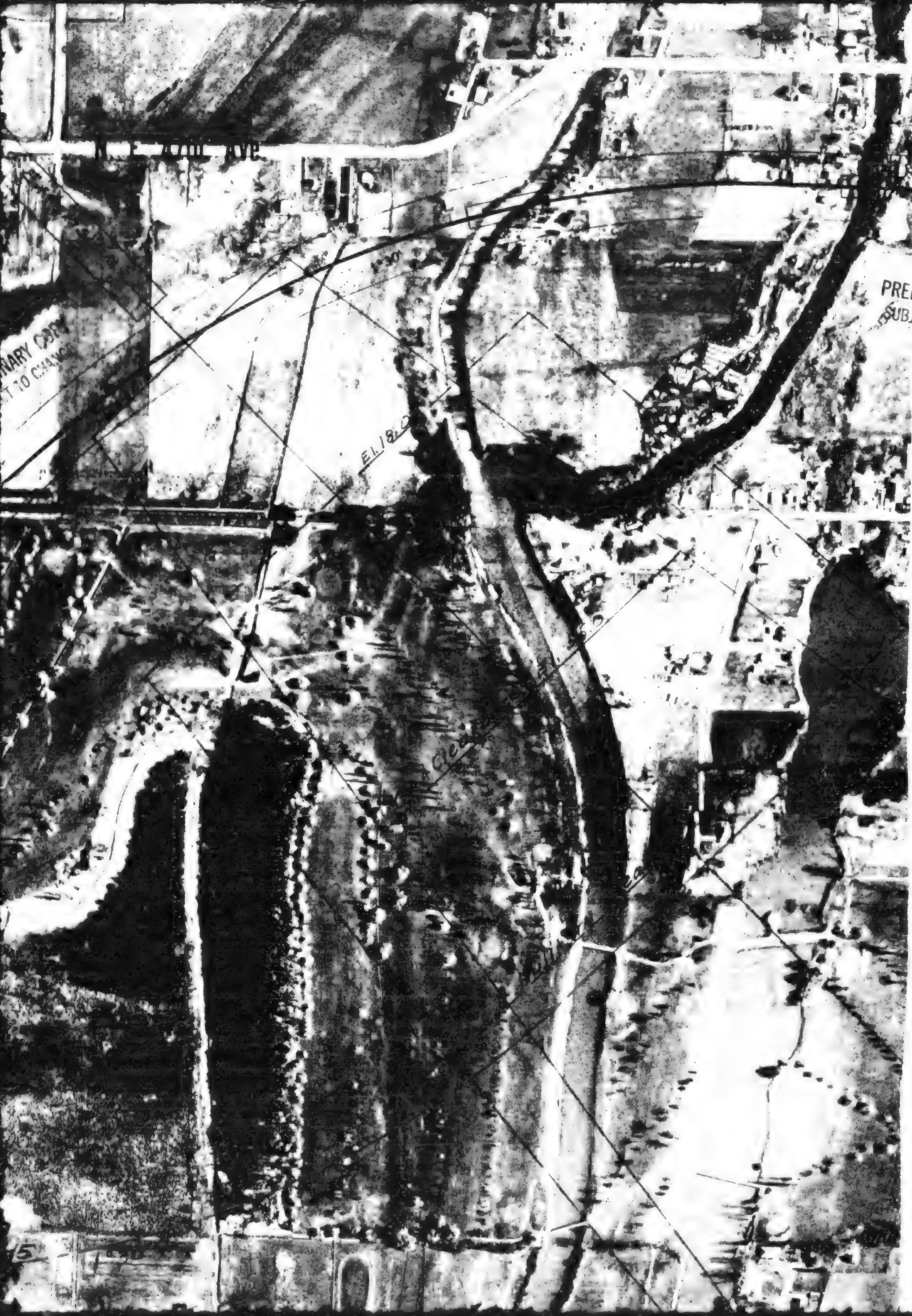
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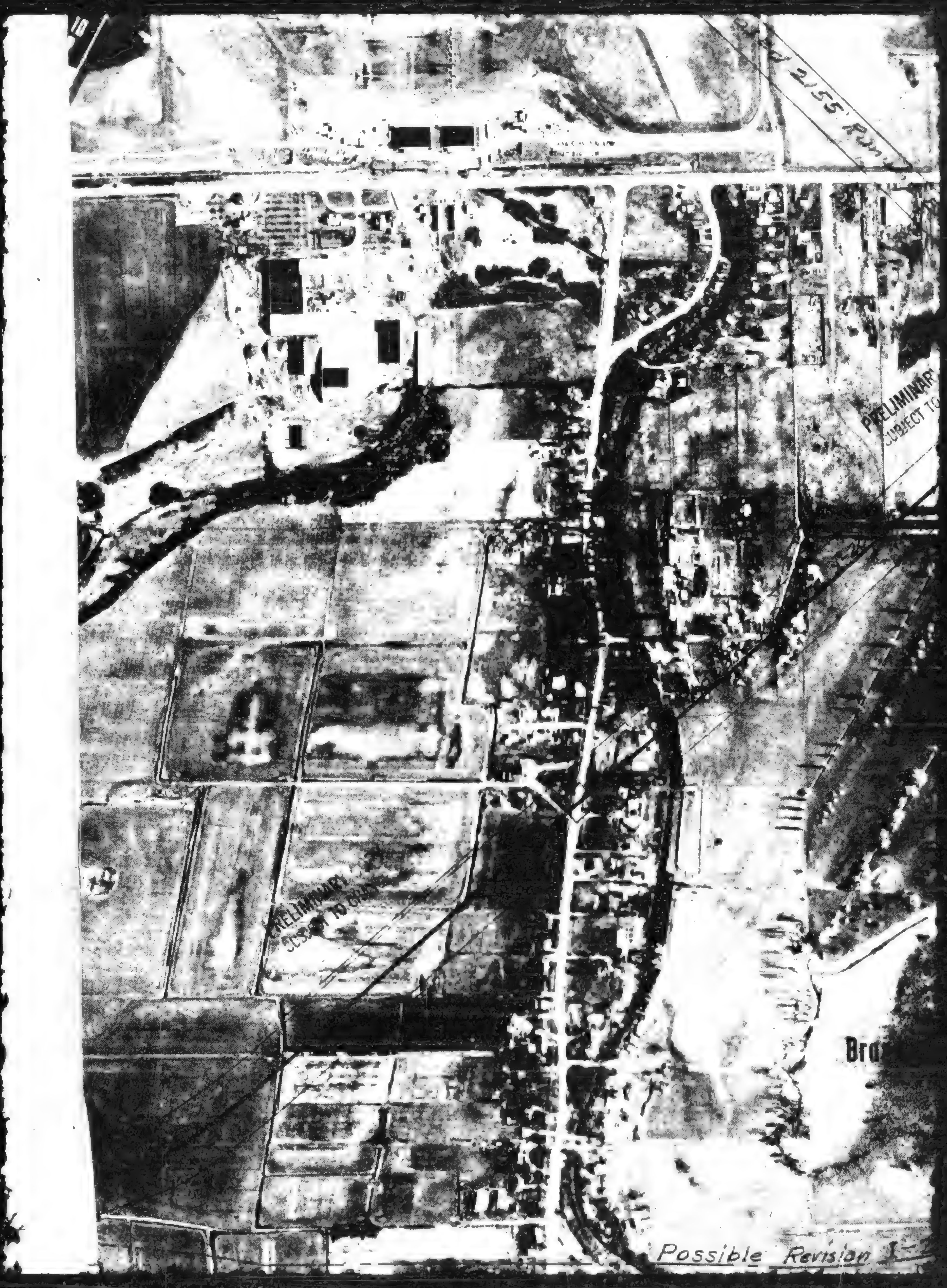
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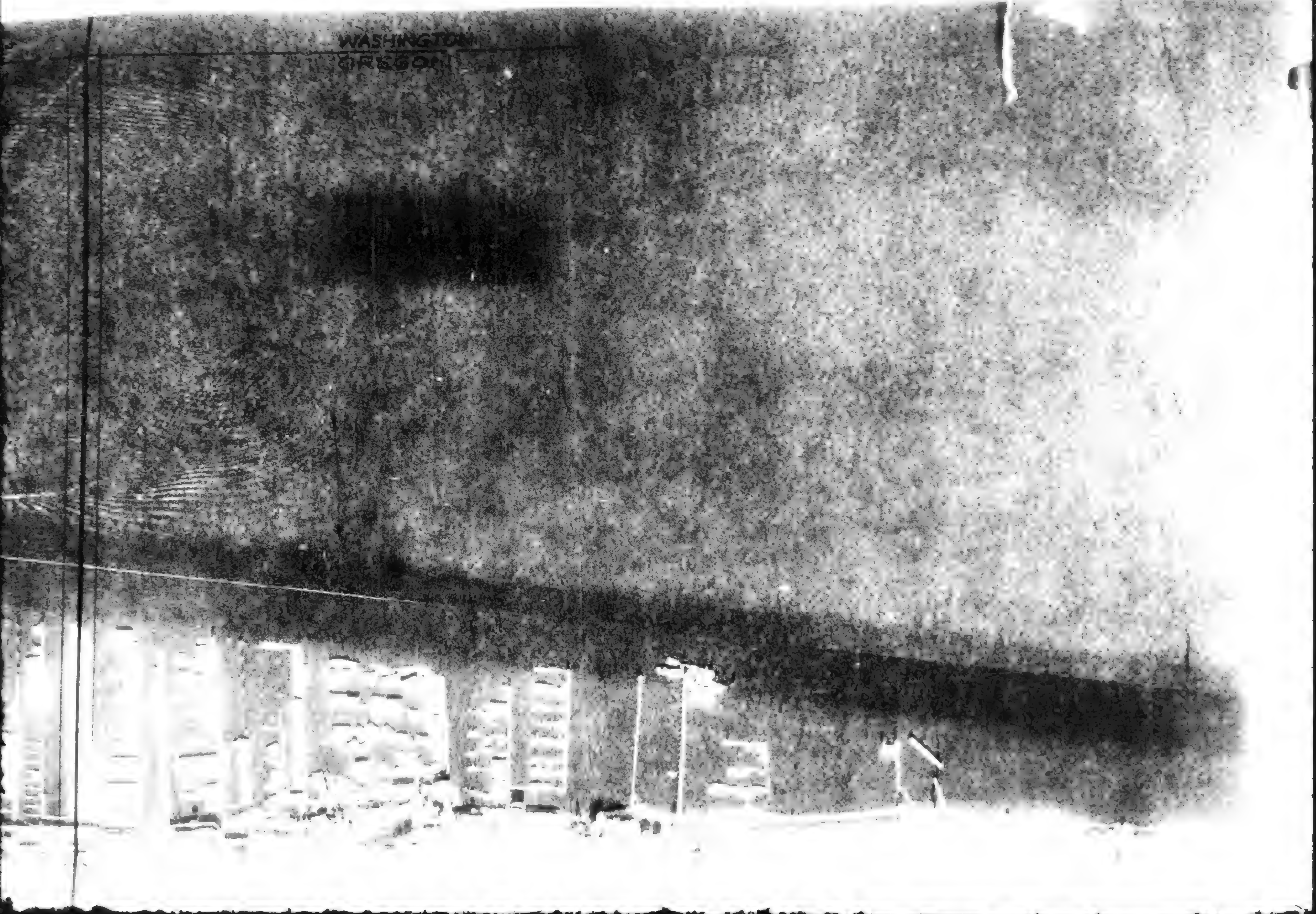
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N. E. Portland Highway

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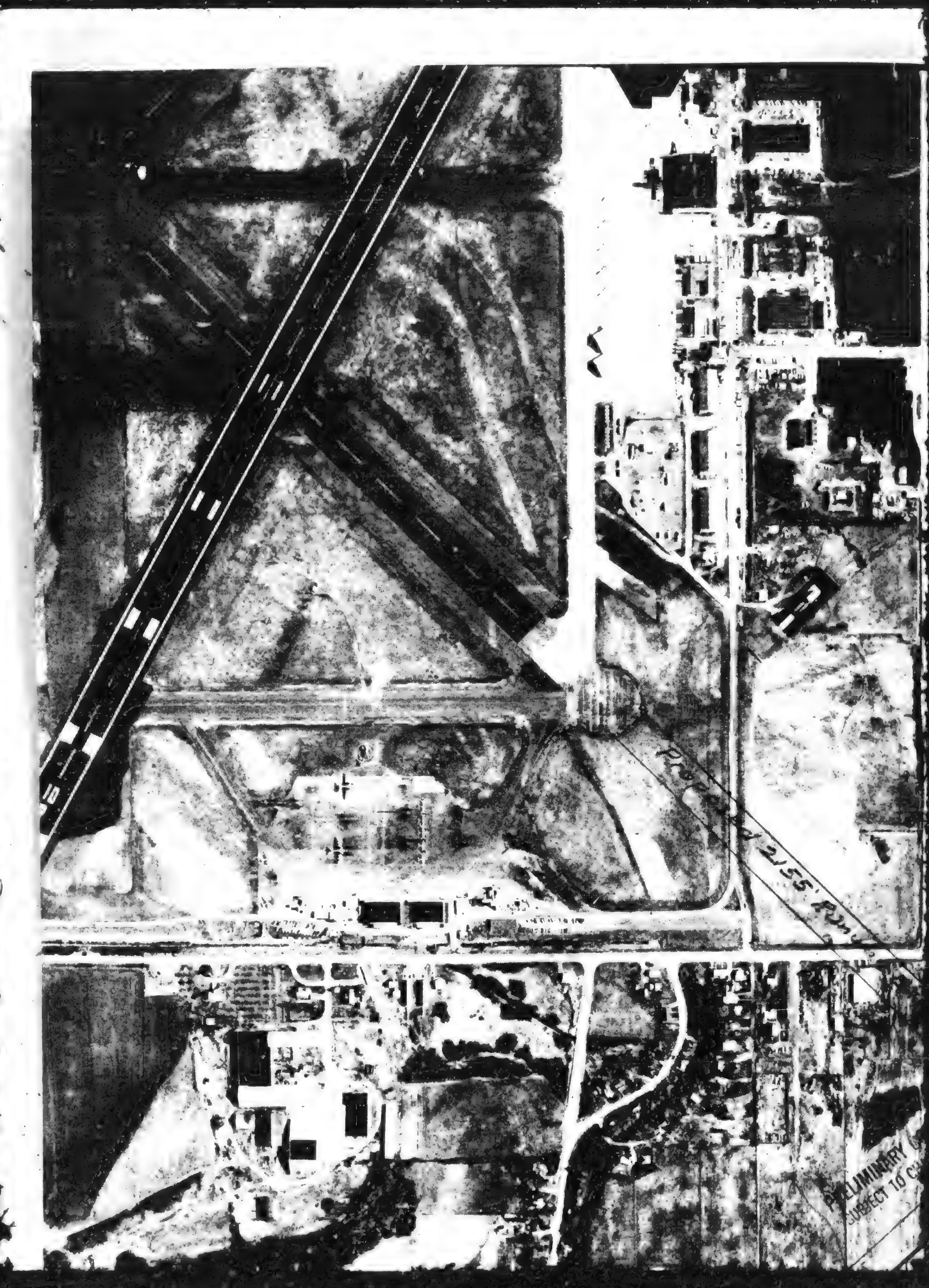
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RECEIVED
MAY 21 1964
FOR FILING

May 20, 1964

Brigadier General Donald N. Anderson
The Adjutant General
State of Oregon Military Department
2150 Fairgrounds Road, N. E.
Salem, Oregon 97310

Attention Mr. Ralph W. Mickle, Chief
Installations Division

Dear Sir:

The purpose of this letter is to enumerate for the record the items of information which I discussed with you at my office on May 19. They are as follows:

1. The location of a freeway in the Portland Airport area has not definitely been established. It is probable that a final decision will not be made for at least four months.

2. A route is under study by the Technical Advisory Committee which crosses the Columbia River west of the airport. It crosses the river as far east of 33d Avenue as the controlling elevations of the runway glide patterns allow.

3. This route may or may not be finally selected as the route of Interstate 205.

4. It appears from preliminary investigation drawings that the westerly right of way line will be approximately 900 feet east of the center of 33d Avenue.

5. It does not appear that the site which you have selected for a proposed armory will be interfered with by the proposed construction if this route is selected.

6. The construction of I-205 will not interfere with the current operations of the intersection of Marine Drive and 33d Avenue.

7. Tentative planning proposes an interchange with Marine Drive and I-205.

Very truly yours,

Forrest Cooper
State Highway Engineer

By

Tom Edwards
Assistant State Highway Engineer

TE:jw

bc Forrest Cooper
R. L. Porter
F. B. Crandall

8905

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MAY 18 1964
FOR FILING

April 15, 1964

Mr. Richard Mason
Commodore, Rose City Yacht Club
7303 N. E. Marine Drive
Portland 13, Oregon

Dear Sir:

Thank you for your letter of April 14, concerning the use of the Government Island, Lemon Island and Sand Island areas for recreational purposes. Data which you have furnished is of extreme interest to us in our analysis of the social and economic impacts of any facility such as the Interstate 205 Freeway.

Our study is conducted under the direction of the Technical Advisory Committee in a coordinated program. The Bureau of Municipal Research and Service is developing the social and economic impacts under the supervision of Mr. Robert Keith, Associate Director, and their representative on the Technical Advisory Committee. I will forward to him a copy of your letter, and ask that he consider making full use of the information contained.

Thank you again for furnishing us with these data.

Very truly yours,

Jay Blair, Chairman
Technical Advisory Committee

cc: Robert Keith
bc: Tom Edwards

NOTED
TOM EDW

RECEIVED
APR 16 1964
OFFICE OF
STATE HIGHWAY ENGINEER

AFFILIATED WITH THE
COLUMBIA RIVER
YACHTING ASSOCIATION

Rose City Yacht Club

7303 N. E. MARINE DRIVE
PORTLAND 13, OREGON

April 14, 1964

Mr. Jay Blair
Chairman, Technical Advisory Committee
Portland-Vancouver Metropolitan Transit Study
Oregon State Highway Department
Salem, Oregon

Dear Mr. Blair:

We have been advised the Technical Advisory Committee of the Oregon State Highway Department's Portland-Vancouver Metropolitan Transportation Study Group is making an analysis of the social and economic impact of a new bridge in the vicinity of NE 111th Avenue and Marine Drive for the proposed Interstate 205 Freeway.

We hope the committee will give the fullest consideration to the growing importance of boating and beach recreation in this vicinity, with particular attention to the popularity of the several islands and anchorages near this point.

Approximately 20,000 pleasure craft registered with The Oregon State Marine Board are operated by Oregon residents in the Columbia and tributaries in the Portland-Vancouver area. A substantial number of pleasure boats owned by Washington residents also use these waters. These boats represent a collective investment of an estimated $10 million, and their owners and families place a high value on the Government Island-Sand Island-Lemon Island complex which affords the only protected anchorages and public beaches suitable for swimming, camping, picnicking and water skiing within easy range of the metropolitan area.

We believe the Study Group should consider:

1. The fact that Government and Lemon Islands, owned by the State Game Commission, and Sand Island, owned by the non-profit Tri-Club Island Corp., represent a unique "quiet area" which cannot readily be duplicated in close proximity to the population.

2. That Sand Island was acquired several years ago by Portland area boaters for this specific purpose, and dedicated to public use on a permanent basis.

RECEIVED
APR 15 1964
TRAFFIC ENGINEERING

NOTED
JAY W. BLAIR

3. That the presence of bridge piers, a bridge structure and heavy bridge traffic in this location would destroy the aesthetic values of this island-anchorage area.

The officers of Rose City Yacht Club will be happy, if the Study Group deems it appropriate, to appear and discuss further the points noted above.

Very truly yours,

Richard Mason
Commodore, Rose City Yacht Club

8705

RECEIVED
MAR 17 1964
FOR FILING

8 6

ERRED TO 3/11/64
~~Bob~~ - Blair
ASST. TRAFFIC ENG

STATE OF WASHINGTON
ALBERT D. ROSELLINI, GOVERNOR

1889

**WASHINGTON**
**STATE HIGHWAY COMMISSION**
**DEPARTMENT OF HIGHWAYS**
OFFICE OF DISTRICT ENGINEER
4200 MAIN STREET
VANCOUVER, WASHINGTON

March 9, 1964

Mr. J. Blair
Chairman,
Technical Advisory Committee
Portland-Vancouver Transportation Study
Department of Highways
State of Oregon
Salem, Oregon

Portland-Vancouver Metropolitan 1 copy PVTS
Transportation Study
Estimate of Cost for
FAI 205 in the State of Washington

Dear Sir:

As requested by you, we are submitting our estimate of cost for the two routes of FAI 205 through the State of Washington. You will note that the cost of each line is approximately the same as far as grading, right of way and engineering is concerned. However, the difference in the cost is in Item 11 which involves the Columbia River Bridge.

I hope this is sufficient in what you desire for your cost estimate; if not, please advise.

Very truly yours,

S. D. EASON
District Engineer

William O. Kingman

By: W. O. KINGMAN
District
Traffic Engineer

NOTED
TOM EDWARDS

SDE:am
WOK
Enc.
c.c. - Mr. C. G. Prahl
Mr. E. E. Niolson

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MAR 12 1964
OFFICE OF
STATE HIGHWAY ENGINEER

RECEIVED
MAR 11 1964
TRAFFIC ENGINEERING

# INTERSTATE 205

From Oregon-Washington State Line (Columbia River) to Salmon Creek Interchange on I-5.

| | | Route #1 East of Airport (111th St. Route) | Blandford Route (33rd St. Route) |
|---|---|---|---|
| 1. | Clearing-Grubbing-Demolition | 84,500 | 42,000. |
| 2. | Utility Adjustments | 212,200. | 568,000. |
| 3. | Grade-Drain Minor Structures | 2,152,700 | 1,689,000. |
| 4. | Base-Surf-Pave-Shoulders | 2,546,600. | 1,505,000. |
| 5. | R.R. Grade Separation | 140,800. | 179,000. |
| 6. | Highway Grade Separations | 1,857,800. | 1,318,000. |
| 7. | Other Bridges | 298,200. | 562,000. |
| 8. | Interchanges | 1,126,000. | 1,287,000. |
| 9. | Guard Rail-Fencing-Lighting-Traffic Control | 90,900. | 188,000. |
| 10. | Roadside Improvement | 67,700 | 116,000. |
| | * Sub-Total, Lines 1 to 10 | 8,577,400. | 7,454,000. |
| 11. | Columbia River Bridge (Incl. SP&S O'Xing ) | 3,508,800. | 8,436,000. |
| | Sub-Total, Lines 1 to 11 | 12,086,200. | 15,890,000. |
| 12. | Constr. Engr. & Conting. | 1,210,000. | 1,590,000. |
| 13. | Preliminary Engineering | 410,000. | 540,000. |
| 14. | Right of Way | 1,404,600. | 2,380,000. |
| | GRAND TOTAL | $ 15,110,800. | $ 20,400,000. |

| | | |
|---|---|---|
| * Sub-Total, Lines 1 to 10, and 14 | $ 9,982,000 | $ 9,834,000. |

JAN 22 1964
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FOR FILING

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January 21, 1964

Mr. A. W. Parsons, Division Engineer
Bureau of Public Roads
477 Cottage Street, N. E.
Salem, Oregon

Dear Mr. Parsons:

Reference is made to the January 13 Circular Memorandum from G. M. Williams to Bureau of Public Roads Regional and Division Engineers and to Mr. Bar's letter of January 17 requesting information as to the last paragraph thereof.

On this date, a permit was received from the U. S. Army Corps of Engineers which covers the Fremont Bridge on Interstate 405. As far as we can determine, there remains the structures on 205, for which an application will be made as soon as the route has been selected. I think you are aware that the reason this last selection has not been made is that it is within the Portland metropolitan urban planning area and we are not able to move until the recommendations of about three committees have been received.

Very truly yours,

Forrest Cooper
State Highway Engineer

By

R. L. Porter
Deputy State Highway Engineer

RLP:[illegible]

cc Mr. Forrest Cooper
Mr. P. M. Stephenson
Mr. Lloyd P. Shaw
Mr. I. D. Merchant

U.S. DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS
WASHINGTON, D. C. 20235

January 13, 1964

CIRCULAR MEMORANDUM TO: Regional and Division Engineers

FROM: G. M. Williams
32-03 Director of Engineering and Operations GMW.

SUBJECT: Permits for the construction of Interstate crossings of navigable waterways

Information available in this office indicates that there are a number of Interstate crossings of navigable streams for which bridge construction permit requests have not been submitted to the Corps of Engineers for their review and the approval of the Secretary of the Army. Normally, the processing of a bridge construction permit, when there is a question regarding the vertical and horizontal clearances to be provided, requires at least a year. Consequently, bridge permit requests submitted late this year will probably not be approved until 1966. Considering that design will require at least a year subsequent to the receipt of the permit and the construction of the bridge will probably require another three years, this means that bridges for which permit requests are submitted after January 1965 will not be completed until 1970.

In view of the above, it appears necessary, if the Interstate System is to be completed on time, to make certain that the majority of the remaining requests for bridge construction permits necessary to complete the Interstate System be submitted this year. It is, therefore, requested that a review of the need for obtaining bridge construction permits at Interstate System crossings of navigable streams be made in each division. This office would appreciate receiving a tabulation showing the status of the bridge construction permit applications for each of these crossings and an estimate of the date on which the permit applications will be submitted to the Corps of Engineers.

3905

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AUG 16 1963
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August 15, 1963

Hon. Rudolph Luepke
Mayor, City of Vancouver
City Hall
Vancouver, Washington

Dear Mayor Luepke:

Thank you for your letter of August 12 relative to public hearings in connection with the location of Interstate Route 205. It is this Department's intent to cooperate with everyone involved and we do not propose to hold public hearings on any route until the technical and advisory committees have had opportunity to consider the traffic data.

The Oregon Highway Department intends to hold public hearings in all municipal areas that are involved in this state and we presume that the Washington Department of Highways will do the same for like areas in your state.

If you have any further questions relative to this matter, please do not hesitate to contact us at any time.

Very truly yours,

Forrest Cooper
State Highway Engineer

By

R. L. Porter
Deputy State Highway Engineer

RLP:ms

cc Mr. Forrest Cooper
Mr. Tom Edwards

CITY OF VANCOUVER
WASHINGTON

OFFICE OF THE MAYOR

August 12, 1963

Mr. Forrest Cooper
Oregon State Highway Department
Salem, Oregon

Dear Mr. Cooper:

The City of Vancouver is somewhat concerned about the proposed hearings in the fall for the location of Interstate 205. We note that both proposed routes across the river are at 111th Avenue.

The City is still strongly opposed to any determination of route prior to detailed analysis of the O & D data gathered in conjunction with Portland-Vancouver Metropolitan Transportation study.

Porter

We would hope that the people in both Vancouver and Portland will be given ample opportunity for public hearing on the location, to be indicated in the future, as the most logical route.

We do not feel it would be fair to force an exceptional future expense upon the taxpayers for an additional Columbia River crossing if the "tentative" 111th Avenue crossing will not provide adequate relief, in the future, for the Interstate Bridge.

Thank you for your cooperation in this matter.

Very truly yours,

Rudolph Luepke
Rudolph Luepke
Mayor

NOTED
R. L. PORTER

RL:ls
Mr. D. Grant Mickle
Mr. W. E. McKibben
Commissioner Wm. A. Bowes

RECEIVED
AUG 13 1963
OREGON
STATE HIGHWAY COMMISSION

8905

CLARK COUNTY-VANCOUVER REGIONAL PLANNING COMMISSION
VANCOUVER, WASHINGTON
CLARK COUNTY COURTHOUSE TELEPHONE OXford 4-1581

November 16, 1962

Mr. Jay Blair, Chairman
Technical Advisory Committee
Portland-Vancouver Metropolitan
Transportation Study
Oregon State Highway Department
Salem, Oregon

Dear Mr. Blair:

In view of financial participation in the Portland-Vancouver Metropolitan Transportation Study by member agencies of the Regional Planning Commission and the work by the Commission staff in developing growth factors for use in the Study, and in view of the Commission's concern that the findings of the Study be fully utilized in determining the location of future transportation facilities in Clark County, the Regional Planning Commission on November 14, 1962 unanimously adopted a resolution concerning Study procedures. The resolution is intended to back up a parallel recommendation made by the Transportation Study Technical Advisory Committee to the Coordinating Committee. A copy of the resolution is attached for your information.

Yours truly,

Rudy Luepke

Rudy Luepke
Chairman

RL/bw

cc: Wm. A. Bowes
Ken Teter
Jim Worthington
C. K. Glaze
W. A. Bugge
Jay Blair

NOTED
PLANNING SURVEY
BGR

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NOV 19 1962
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1. WHEREAS the "Order of Development of a Transportation Plan (Revised)" adopted by the Portland-Vancouver Metropolitan Transportation Study Technical Advisory Committee on April 6, 1962 lists the evaluation of 1980 traffic needs and comparison with the existing system as a major step in the Transportation Study, to be completed prior to the selection and testing of 1980 proposals;

2. WHEREAS the existing system means the system in use plus facilities which are under construction or otherwise already formally committed in accordance with normal procedure, including public hearings;

3. WHEREAS the purpose of participation in the Portland-Vancouver Metropolitan Transportation Study by the Regional Planning Commission is to assure that comprehensive traffic and land use planning considerations will be taken fully into account in determining the location of future transportation facilities, which facilities will shape the community environment and future growth for years to come;

4. WHEREAS the Coordinating Committee of the Portland-Vancouver Metropolitan Transportation Study, on recommendation from the Technical Advisory Committee, adopted on May 7, 1962 the following resolution:

> BE IT RESOLVED: ALL AGENCIES BE URGED TO DELAY, WHEREVER POSSIBLE, ACTION INTENDED OR LIKELY TO TIE DOWN OR COMMIT AN AGENCY TO A MAJOR TRANSPORTATION FACILITY WITHOUT FULL UTILIZATION OF 1980 STUDY DATA, PROJECTIONS, AND EVALUATIONS IN ORDER THAT MAXIMUM USE BE MADE OF THE FINDINGS AND PROJECTIONS OF THE TRANSPORTATION STUDY.

5. WHEREAS the Oregon State Highway Department has indicated to the Technical Advisory Committee its intention to include a proposed unofficial routing for Interstate 205 as a part of the existing formally committed system for the initial comparison with 1980 traffic needs and all subsequent tests, without benefit of the forthcoming 1980 projections and evaluations;

6. WHEREAS the Technical Advisory Committee on November 2, 1962, adopted a recommendation that the Coordinating Committee intercede with the Oregon State Highway Department to effect the transferral of proposed routes for Interstate 205 from the committed system to the status of a future proposal to be tested against 1980 traffic needs;

7. WHEREAS the proposed alignment of Interstate 205 through Clark County has not been made available to the Regional Planning Commission or to officials of Clark County or the City of Vancouver, has not been studied locally in its relationship to local comprehensive plans and objectives, and has not received the benefit of either a formal or an informal public hearing;

8. WHEREAS in the absence of any announced justification for haste the inclusion of the proposed alignment of Interstate 205 on the committed system, rather than as a future proposal to be tested, threatens the integrity of the Portland-Vancouver Metropolitan Transportation Study;

NOW THEREFORE BE IT RESOLVED that the Regional Planning Commission

1. Endorses the "Order of Development of a Transportation Plan" as adopted by the Technical Advisory Committee insofar as it concerns this question,

2. Endorses the action of the Technical Advisory Committee recommending that the Coordinating Committee effect the transferral of proposed routes for Interstate 205 to the status of future proposals to be tested,

3. Requests that the local representatives on the Coordinating Committee, the Washington State Department of Highways and the U. S. Bureau of Public Roads support the Technical Advisory Committee recommendation and that the Coordinating Committee take the recommended action.

PASSED AND ADOPTED this 14th day of November, 1962.

Rudy Luepke

Chairman

ATTEST:

Beth N. Withers

8985

J H

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SEP 7 1962

FORM E-30 SOM 11-61 40230

FOR FILING

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R/W

Laurelhurst

**OREGON STATE HIGHWAY DEPARTMENT**

**INTER-DEPARTMENT CORRESPONDENCE**

Salem, Oregon
August 31, 1962

**SUBJECT:**

**To:** MEMO TO FILE

On this date, the following people were in my office discussing the location of Interstate Highway 205 in the Portland-Vancouver area:

Fred H. Weakley, Manager, Port of Camas-Washougal
M. James Gleason, Multnomah County Commissioner
Art MacDonald, interested party
Don MacKay " "
Robert Peery " "

The discussion centered mostly around a possible Columbia River crossing. I told the group that nothing definite had been decided and that it would be some time before anything of a definite nature would be available.

Commissioner Gleason asked that thought be given to connecting major county roads to the freeway. He specifically mentioned Marine Drive. No promises or commitments were made, the matters at hand being discussed only in a general way.

Forrest Cooper
Forrest Cooper
State Highway Engineer

FC:fn

cc G. S. Paxson
R. L. Porter
Victor D. Wolfe

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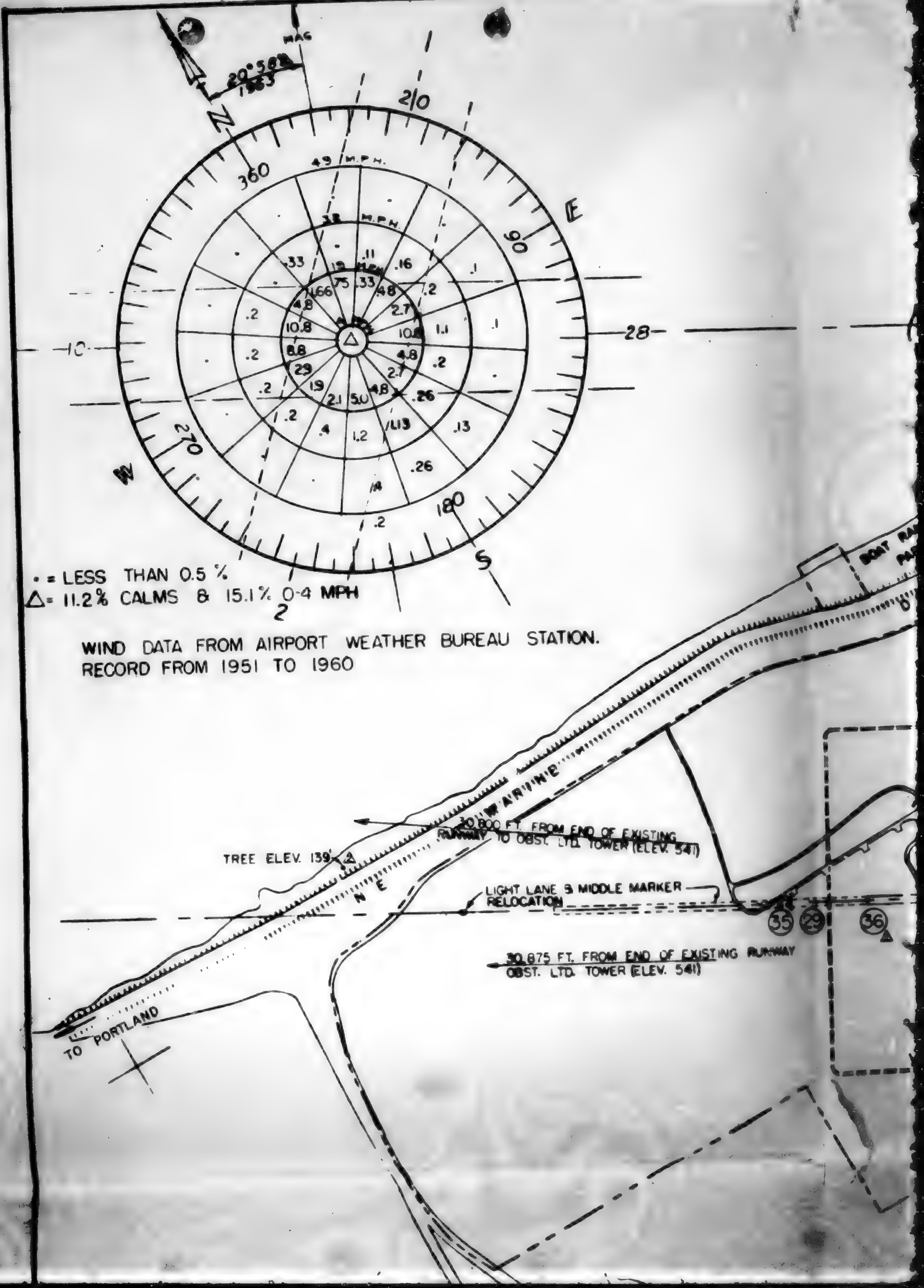
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BOAT
MARINE
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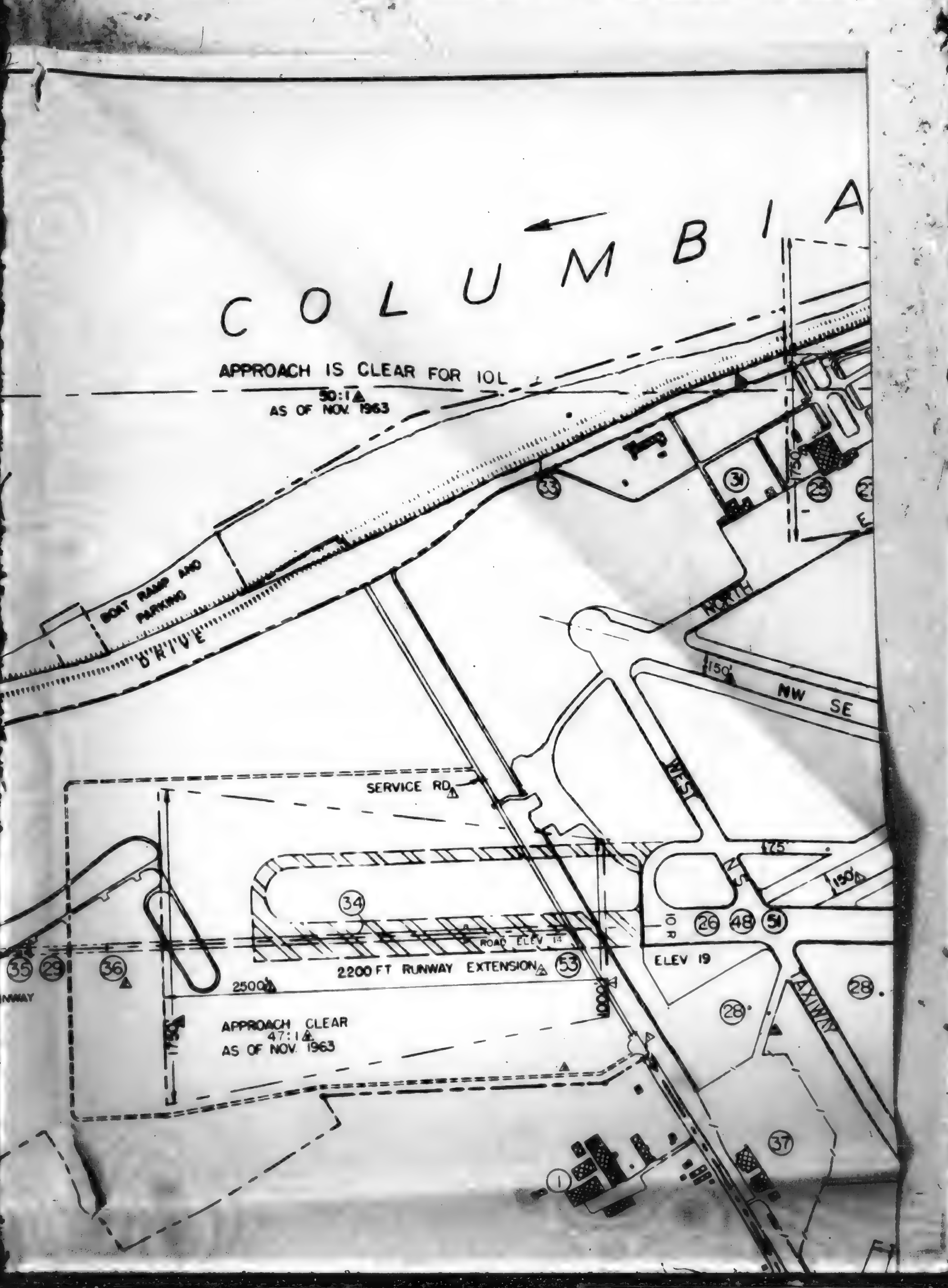
30,800 FT. FROM END OF EXISTING RUNWAY TO OBST. LTD. TOWER (ELEV. 541)
LIGHT LANE & MIDDLE MARKER RELOCATION
35
29
36
30,875 FT. FROM END OF EXISTING RUNWAY OBST. LTD. TOWER (ELEV. 541)
N E
TO PORTLAND

• = LESS THAN 0.5 %

Δ = 11.2% CALMS & 15.1% 0-4 MPH

WIND DATA FROM AIRPORT WEATHER BUREAU STATION.
RECORD FROM 1951 TO 1960


COLUMBIA
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AS OF NOV. 1963
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31
29
27
750
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AS OF NOV. 1963
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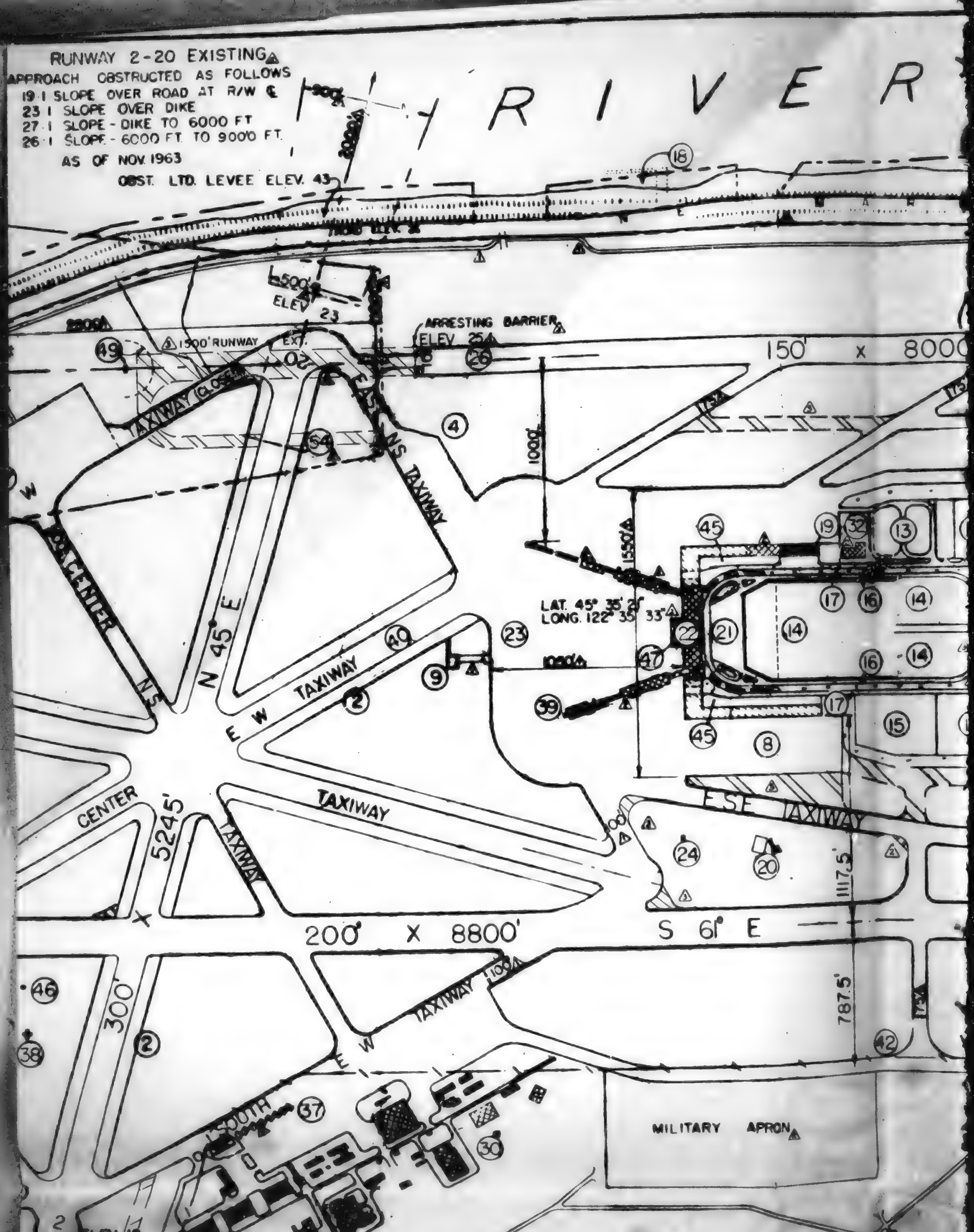

RUNWAY 2-20 EXISTING
APPROACH OBSTRUCTED AS FOLLOWS
19:1 SLOPE OVER ROAD AT R/W ℄
23:1 SLOPE OVER DIKE
27:1 SLOPE - DIKE TO 6000 FT
26:1 SLOPE - 6000 FT. TO 9000 FT.
AS OF NOV. 1963
OBST. LTD. LEVEE ELEV. 43

RIVER
18
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ELEV 23
ARRESTING BARRIER
ELEV 25
26
49
1500' RUNWAY EXT.
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150' x 8000
TAXIWAY CLOSED
54
NS TAXIWAY
4
1000'
1550'
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19
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13
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LONG. 122° 35' 33"
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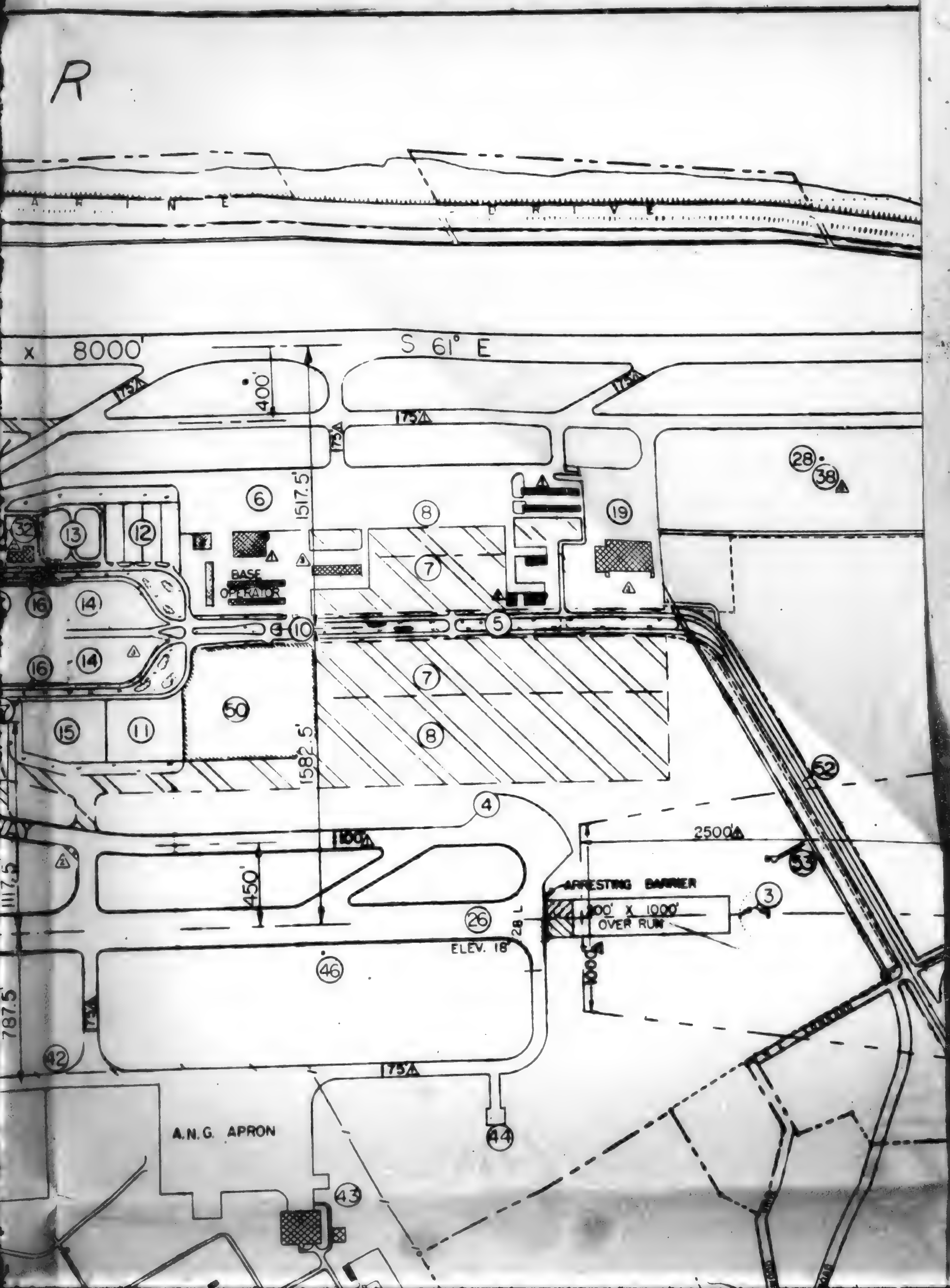
MILITARY APRON
ELEV 18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OPERATOR
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OVER RUN
1000'
ELEV. 18'
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787.5'
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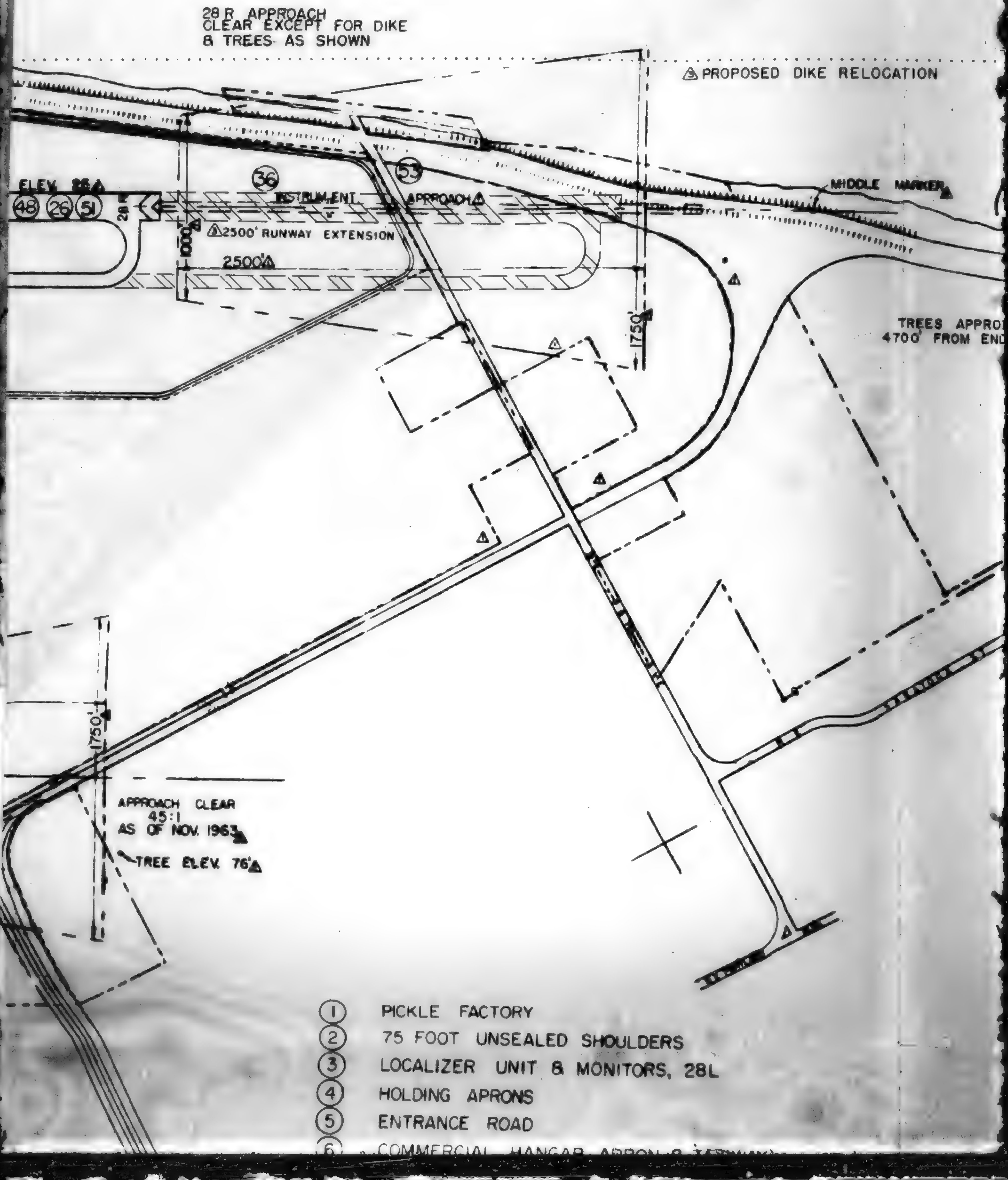
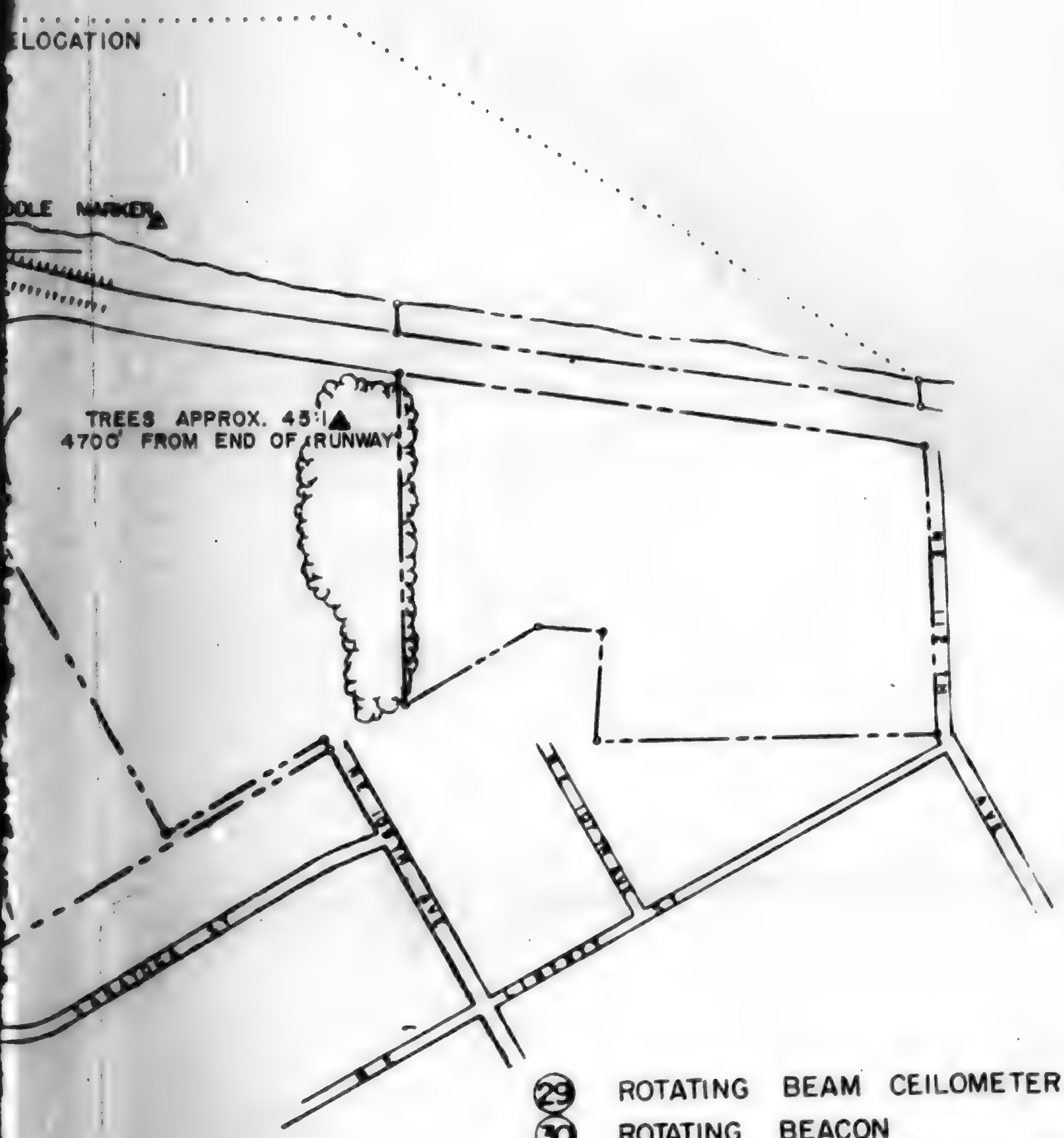
44
A.N.G. APRON
43

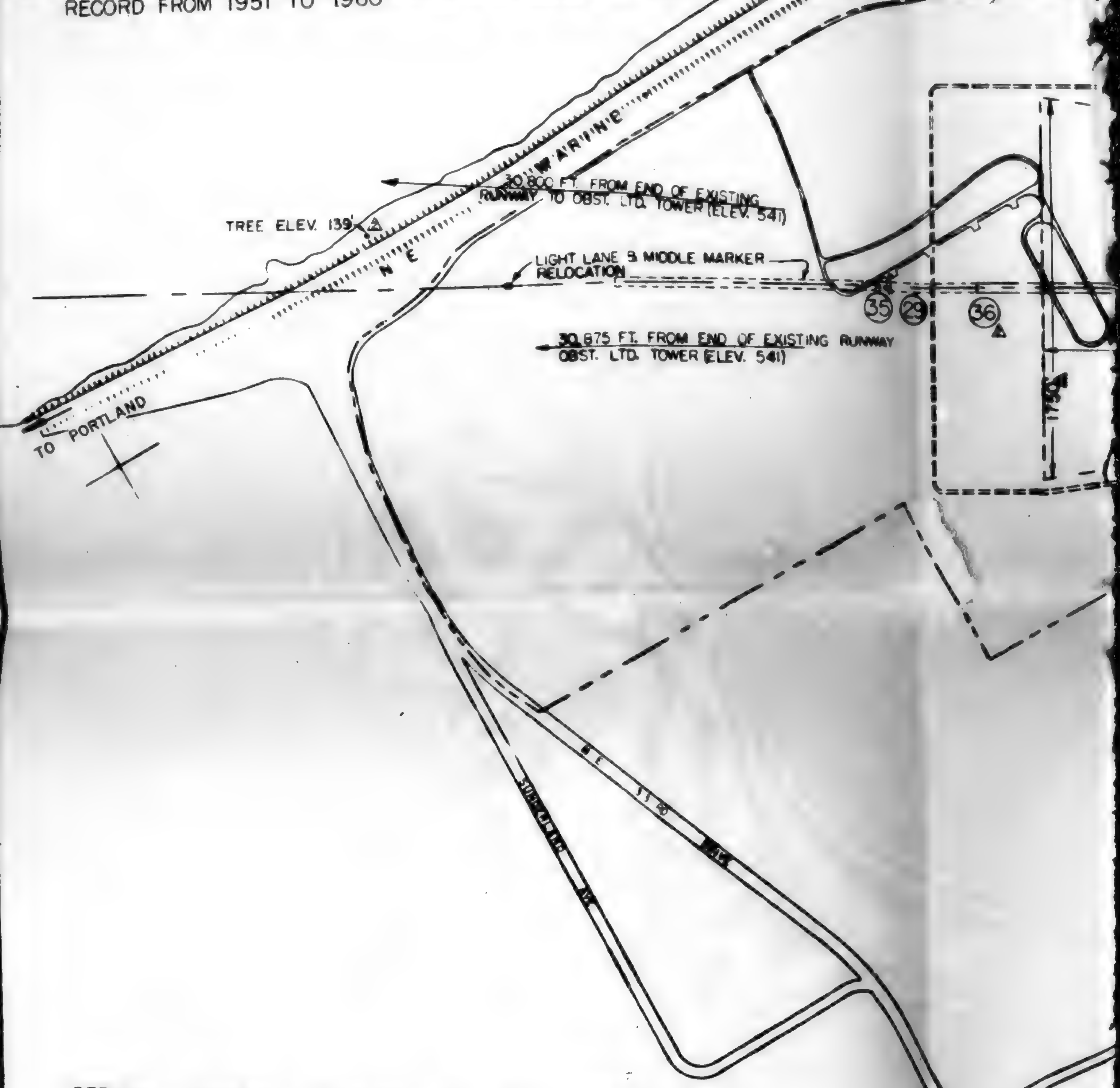

28 R APPROACH
CLEAR EXCEPT FOR DIKE
& TREES AS SHOWN
PROPOSED DIKE RELOCATION
ELEV. 25
48
26
51
28
36
53
INSTRUMENT APPROACH
1000'
2500' RUNWAY EXTENSION
2500'
1750'
MIDDLE MARKER
TREES APPRO
4700' FROM END
1750'
APPROACH CLEAR
45:1
AS OF NOV. 1963
TREE ELEV. 76'

① PICKLE FACTORY
② 75 FOOT UNSEALED SHOULDERS
③ LOCALIZER UNIT & MONITORS, 28L
④ HOLDING APRONS
⑤ ENTRANCE ROAD
⑥ COMMERCIAL HANGAR APRON & TAXIWAY


ELOCATION
DDLE MARKER
TREES APPROX. 45:1
4700' FROM END OF RUNWAY

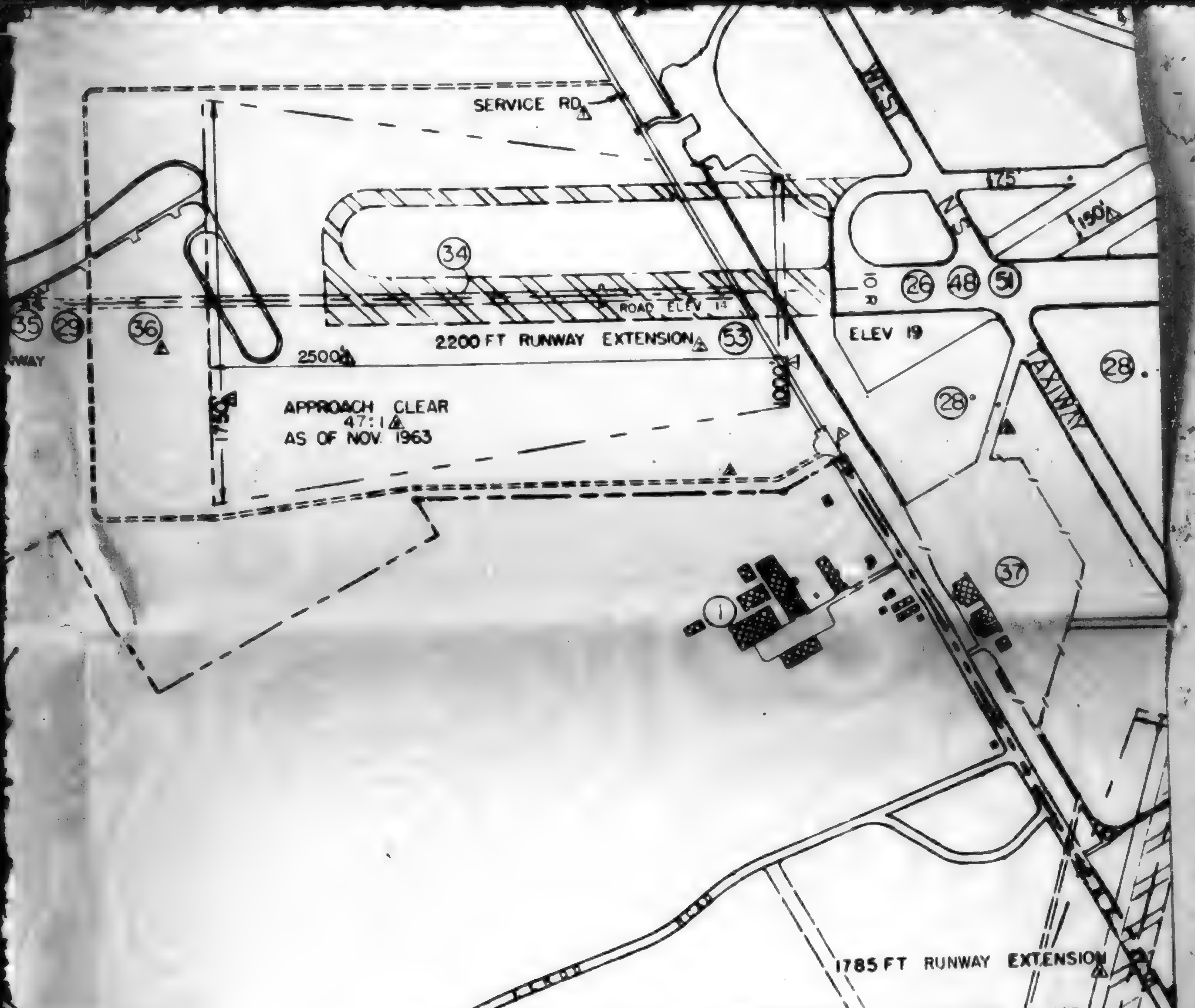
| | |
|---|---|
| ㉙ | ROTATING BEAM CEILOMETER |
| ㉚ | ROTATING BEACON |
| ㉛ | WEATHER BUREAU & FAA SERVICES |
| ㉜ | STORAGE & MAINTENANCE BUILDING AREA |
| ㉝ | CEILOMETER |
| ㉞ | LIGHT LANE 10 R |
| ㉟ | MIDDLE MARKER 10 R |
| ㊱ | GLIDE PATH UNIT & LIGHT LANE |
| ㊲ | AIR FORCE RESERVE FACILITIES |
| ㊳ | GLIDE SLOPE UNIT |
| ㊴ | [illegible] |
| ㊵ | TAXIWAYS TO BE RELIGHTED - FUTURE |
| ㊶ | AIRPORT SURVEILLANCE RADAR |
| ㊷ | AIR FORCE TAXIWAY |
| ㊸ | ARMY NATIONAL GUARD FACILITIES |

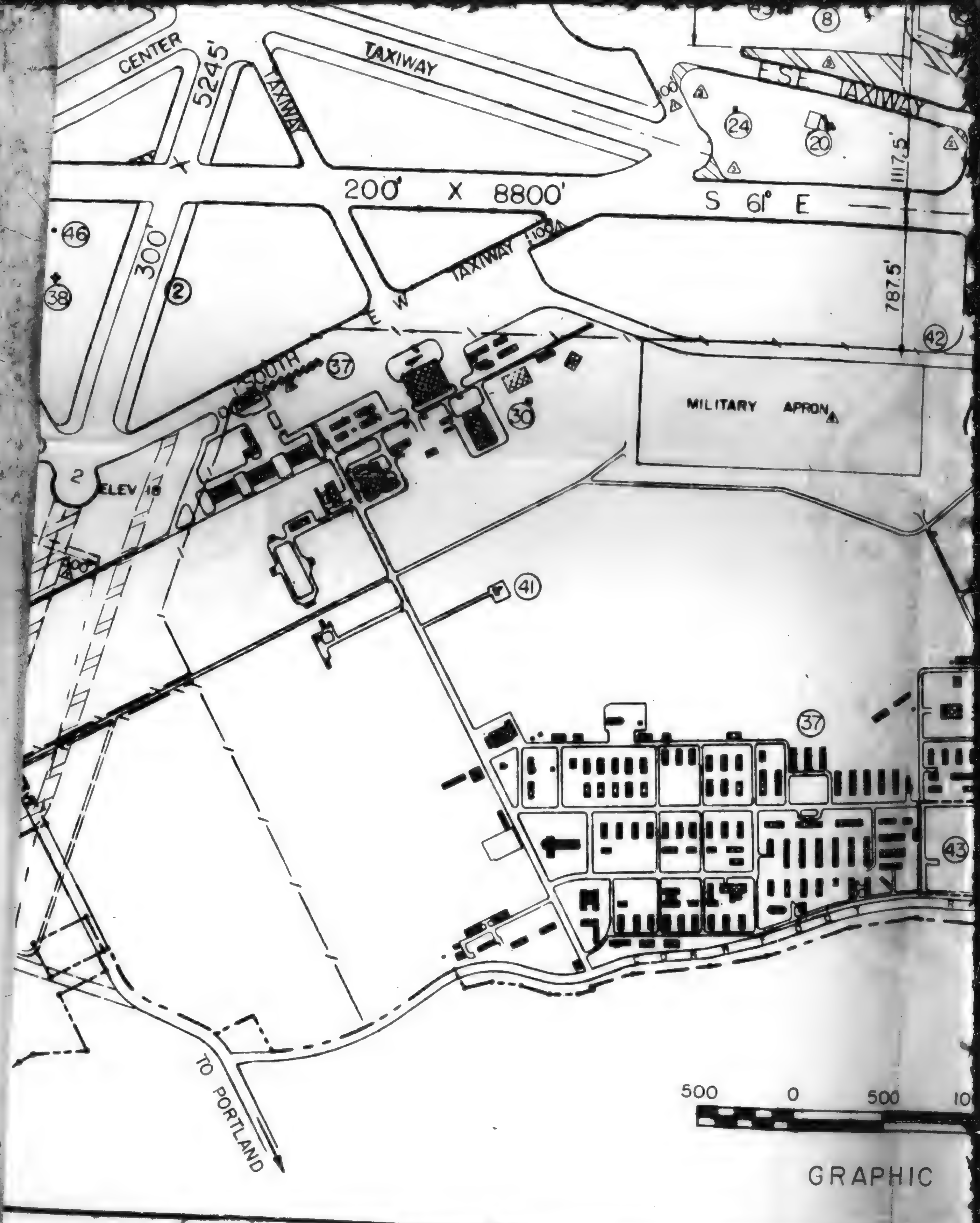
RECORD FROM 1951 TO 1960

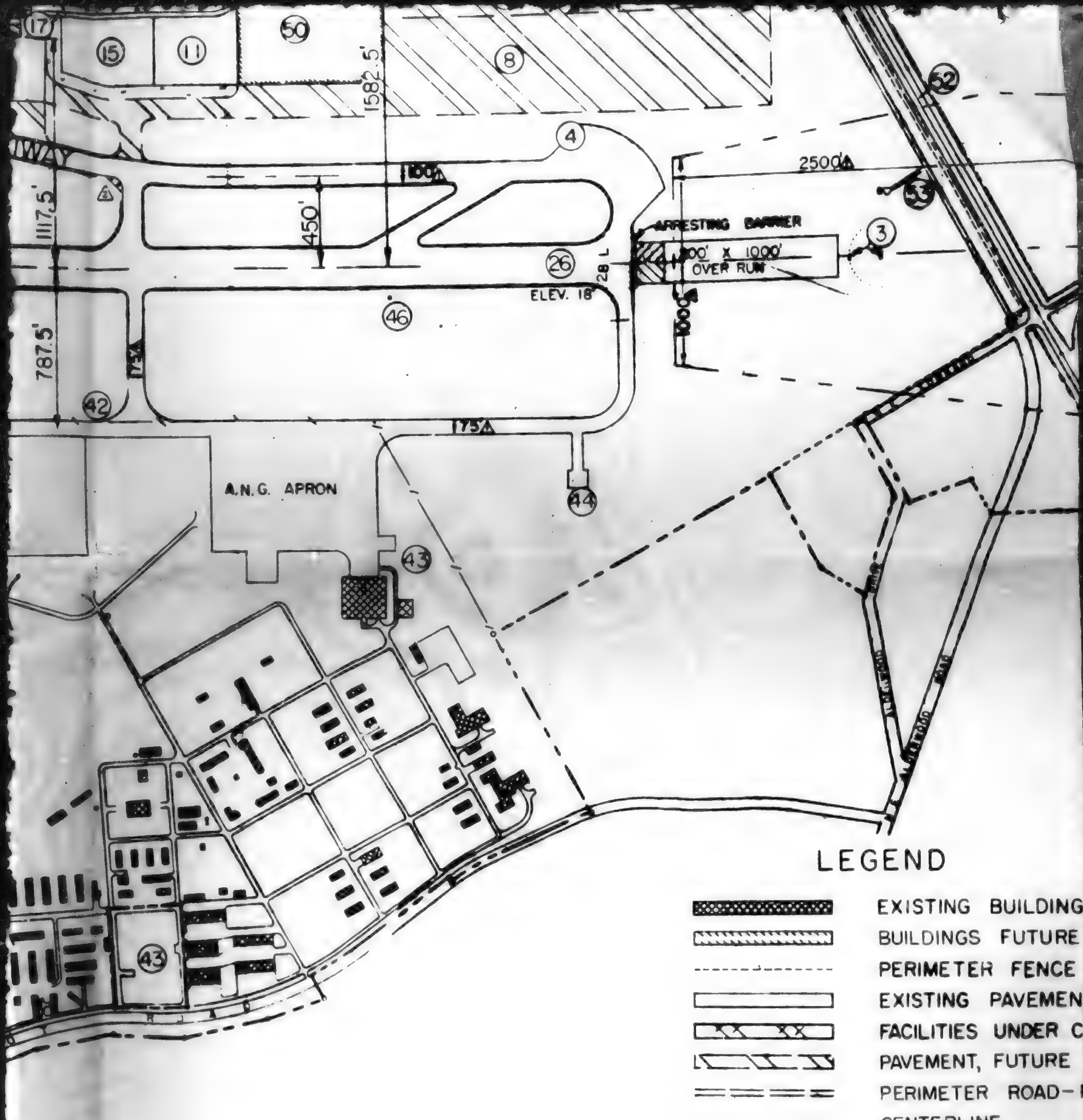

MARINE
N E
30,800 FT. FROM END OF EXISTING RUNWAY TO OBST. LTD. TOWER (ELEV. 541)
TREE ELEV. 139'
LIGHT LANE & MIDDLE MARKER RELOCATION
35
29
36
30,875 FT. FROM END OF EXISTING RUNWAY OBST. LTD. TOWER (ELEV. 541)
TO PORTLAND
1790

OFFICIAL AIRPORT ELEVATION: 25 FEET (U.S.C.&G.S. DATUM)
MEAN MAXIMUM TEMPERATURE OF HOTTEST MONTH 79.2° F.
EFFECTIVE GRADIENTS: 0.017% 10R-28L: 0.0375% 10L-28R: 0.096% 2-20:
CORRECTION FACTORS: 1.05 ON 10R-28L; 1.051 ON 10L-28R; 1.053 ON 2-20
CATEGORY OF AIRPORT: INTERCONTINENTAL
TYPE OF RUNWAY LIGHTS: HIGH INTENSITY ON 10R-28L (L-820) & 10L-28R (L-819)
MED INTENSITY ON 2-20

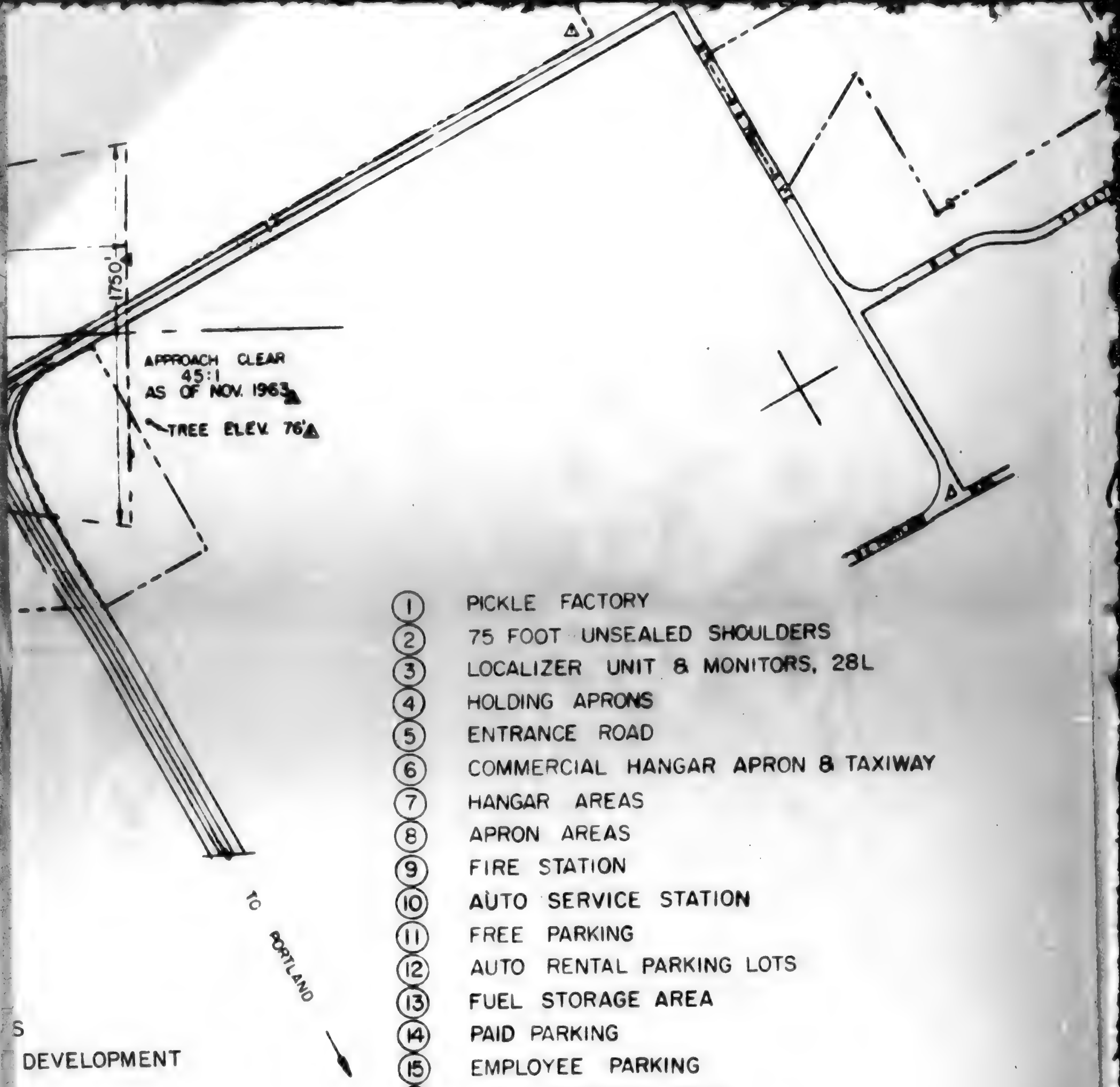
ALL TAXIWAYS LIGHTED INCLUDING PERIMETER OF TERMINAL APRON
WIND COVERAGE FOR RUNWAYS 10-28=92.4% - 2-20=90.7% COMBINED COVERAGE 98.8%
LOCATION OF CONTROL TOWER (CENTER OF TOWER ROOF) LAT. 45° 35' 21" N. - LONG. 122° 35' 33" W.


SERVICE RD
175'
150'
34
26
48
51
35
29
36
ROAD ELEV 14
2200 FT RUNWAY EXTENSION
53
ELEV 19
28
2500'
1000'
1750'
APPROACH CLEAR
47:1
AS OF NOV. 1963
28
AXIWY
37
1
1785 FT RUNWAY EXTENSION
PROPOSED 47 TH AVE RELOCATION
APPROACH CLEAR
40:1
AS OF NOV. 1963
2000'
1000'
2-20:
L-28R (L-819)
N
ED COVERAGE 98.8%
-LONG. 122° 35' 33" W


CENTER
5245'
TAXIWAY
TAXIWAY
ESE TAXIWAY
100'
8
24
20
1117.5'
200' X 8800'
S 61° E
46
300
2
38
W TAXIWAY
100'
787.5'
42
SOUTH
37
30
MILITARY APRON
2
ELEV 18
41
37
43
TO PORTLAND
500 0 500 10
GRAPHIC



17
15
11
50
8
52
1582.5'
4
2500'
53
1117.5'
450'
100'
ARRESTING BARRIER
3
1000' X 1000'
OVER RUN
26
28 L
ELEV. 18
1000'
46
787.5'
175'
42
175'
A.N.G. APRON
44
43
43
LEGEND
EXISTING BUILDING
BUILDINGS FUTURE
PERIMETER FENCE
EXISTING PAVEMEN
FACILITIES UNDER C
PAVEMENT, FUTURE
PERIMETER ROAD-
CENTERLINE
PROPERTY BOUNDAR
CLEAR ZONE
USAF LEASE LI
DIKE EMBANKMENT
ELEV. 23
ELEVATIONS USC
LANDSCAPING
500
1000
1500
2000
2500
GRAPHIC SCALE



| | |
|---|---|
| ① | PICKLE FACTORY |
| ② | 75 FOOT UNSEALED SHOULDERS |
| ③ | LOCALIZER UNIT & MONITORS, 28L |
| ④ | HOLDING APRONS |
| ⑤ | ENTRANCE ROAD |
| ⑥ | COMMERCIAL HANGAR APRON & TAXIWAY |
| ⑦ | HANGAR AREAS |
| ⑧ | APRON AREAS |
| ⑨ | FIRE STATION |
| ⑩ | AUTO SERVICE STATION |
| ⑪ | FREE PARKING |
| ⑫ | AUTO RENTAL PARKING LOTS |
| ⑬ | FUEL STORAGE AREA |
| ⑭ | PAID PARKING |
| ⑮ | EMPLOYEE PARKING |
| ⑯ | MAIN ENTRANCE ROAD |
| ⑰ | TRUCK ROADS |
| ⑱ | BULK FUEL DEPOT, FUTURE |
| ⑲ | CARGO BUILDINGS |
| ⑳ | SEWAGE DISPOSAL PLANT |
| ㉑ | METERED PARKING |
| ㉒ | TERMINAL BUILDING & CONTROL TOWER |
| ㉓ | TERMINAL APRON |
| ㉔ | PRECISION APPROACH RADAR BUILDING |
| ㉕ | HANGAR BUILDING |
| ㉖ | ALL WEATHER RUNWAY MARKING |
| ㉗ | NORTH APRON |
| ㉘ | TRANSMISSOMETER |

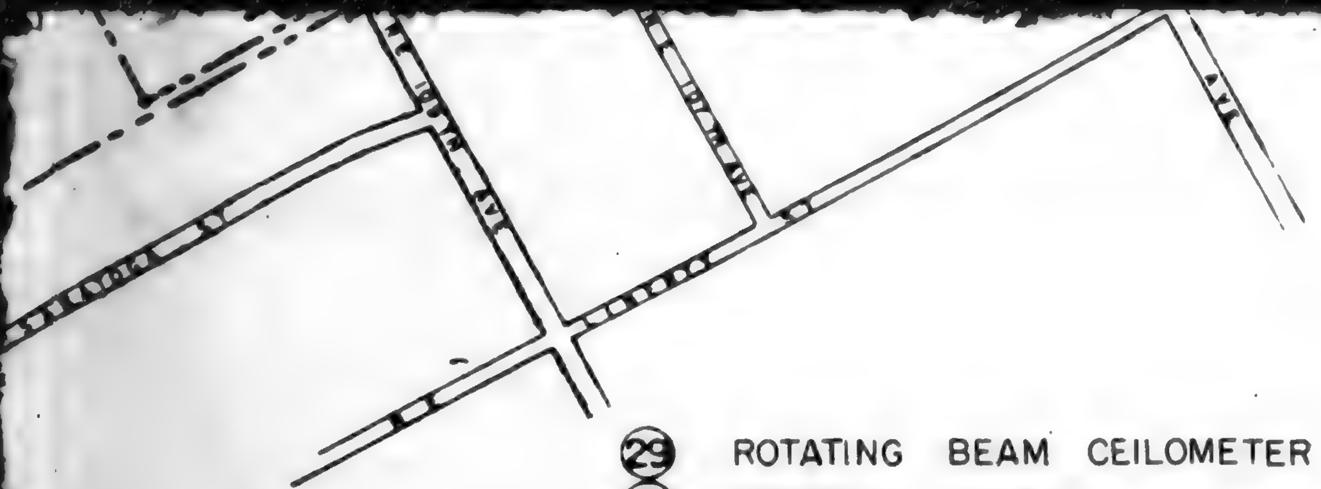
S
DEVELOPMENT

T
ONSTRUCTION
DEVELOPMENT
PROPOSED

RY

NE

AGS



㉙ ROTATING BEAM CEILOMETER
㉚ ROTATING BEACON
㉛ WEATHER BUREAU & FAA SERVICES
㉜ STORAGE & MAINTENANCE BUILDING AREA
㉝ CEILOMETER
㉞ LIGHT LANE 10R
㉟ MIDDLE MARKER 10R
㊱ GLIDE PATH UNIT & LIGHT LANE
㊲ AIR FORCE RESERVE FACILITIES
㊳ GLIDE SLOPE UNIT △
㊴ INTERNATIONAL FACILITIES
㊵ TAXIWAYS TO BE RELIGHTED - FUTURE
㊶ AIRPORT SURVEILLANCE RADAR
㊷ AIR FORCE TAXIWAY
㊸ ARMY NATIONAL GUARD FACILITIES △
㊹ U. S. A. F. POWER CHECK PAD
㊺ RAMP EQUIPMENT PARKING AREA
㊻ U. S. A. F. MOBILE TOWER PADS
㊼ AIRPORT SURFACE DETECTION EQUIPMENT
㊽ IN-RUNWAY & LEAD OFF LIGHTING-FUTURE
㊾ LOCALIZER UNIT & MONITOR
㊿ PROPOSED MOTEL AREA
(51) DESIGNATED INSTRUMENT RUNWAY
(52) 82 ND. AVE. TO PORTLAND LIGHTED
(53) EMERGENCY FIRE & CRASH TRUCK CROSSING (PROPOSED)
(54) DISPLACED THRESHOLD TO GIVE 40:1 OVER ROAD (PROPOSED)

NOTE. MASTER PLAN APPROVED BY THE
PORT OF PORTLAND COMMISSON.

PRESIDENT

THE PORT OF PORTLAND

# LAYOUT PLAN

J.H.R. D.V.K.

AVIATION

8-1-62 AS SHOWN PA 62-6

| NO. | DATE | REVISION | BY | APPR'V'D |
|---|---|---|---|---|
| △3 | 4-9-67 | MISC. REVISIONS | RSB | |
| △2 | 1-7-66 | MISC. REVISIONS | JHR | |
| △1 | 2-5-63 | MISC. REVISIONS | JHR | |

8905

8

RECEIVED
196

FOR FILING

D STATES VERNMENT

U.S. D ARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS

# *Memorandum*

TO : Mr. W. C. Williams, State Highway Engineer
Salem, Oregon

DATE: July 19, 1960

FROM : C. C. Polk, Division Engineer
08-35.3
Salem, Oregon

SUBJECT: Revised 1961 Interstate Estimate - Bridge Estimate

As requested by Mr. Cooper's April 1, 1960 letter, we are furnishing a copy of the State of Washington's estimate of cost for the Columbia River Bridge on Interstate Route 205.

We understand that the bridge is a through type and that the State of Washington will use the code 212 for the typical cross section reference.

You will note that a 6-foot offset has been provided on the right. Though the DHV to capacity ratio is over 1.0, we assume that the State of Washington has made the individual economic study on this long span structure as required by Assistant Commissioner Williams' April 13, 1960 circular memorandum to support the selection of the roadway cross section dimensions.

Attachment

RECEIVED
JUL 19 1960
OFFICE OF
STATE HIGHWAY ENGINEER

NOTED
FORREST COOPER

avw

S. F. No. 4673—1-38—50M. 51920. OS

# DESIGN AND QUANTITY CALCULATIONS

Project Col. Riv. Br  I[illegible] Rt 205 Sheet No. 1 of ..... sheets
S. H. No. 1 alt Made by Buell Date 6-20-60 Check by ..... Date .....

From map and profile furnished by Oregon to the B.P.R and by the BPR to us by letter of May 17 it appears that from the ¢ of 300' river channel the length to an overpass of Marine Drive would be 3250'.
The Washington side would be 3925' to overcross the S.P.&S. Ry and P.S.H. 8

Due to clearing the flight angle it will be necessary to reduce the center span to a minimum horizontally and vertically. The vert clearance would be reduced to 148' above +2.0 El. M.L.W. U.S.C&G. Survey. The horz. clearance of 320' requires a span of approx 400'. Use flanking spans of approx 325'.

On the Oregon side this requires 8 spans @ 325 = 2600'
½ of 400' span = 200
Total truss length 2800'
Concrete approach 450'
For total River Br. length = 3250'

| Pier No. | Sta. | ht |
|---|---|---|
| 1 | S. 28+00 | = 50' |
| 2 | S. 24+75 | = 80' |
| 3 | S 21+50 | = 100 |
| 4 | S. 18+25 | = 120 |
| 5 | S 14+00 | = 135 |
| 6 | S. 11+75 | = 150 |
| 7 | S 8+50 | = 170 |
| 8 | S 5+25 | = 185 |
| 9 | S. 2+00 | = 190 |

Washington side requires 6 spans @ 325' = 1950'
½ of 400' = 200
Total truss = 2150'
Concr approach = 1775'
Total 3925

| Pier | Sta. | ht |
|---|---|---|
| 10 | N 2+00 | = 190' |
| 11 | 5+25 | 185 |
| 12 | 8+50 | 165' |
| 13 | 11+75 | 135 |
| 14 | 15+00 | 90 |
| 15 | 18+25 | 75 |
| 16 | 21+50 | = 65' |

Sheet No.

avw

Data
#38

WASHINGTON STATE HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS
OLYMPIA, WASHINGTON

INTERSTATE NEEDS STUDY 104(b)5

TO: R.E. Futrell
Date: June 21, 1960

FROM: George Stevens (AMB)

In reply to your ~~letter~~ I.D.C of June 2, 1960, we furnish the following structure description and cost estimate:

| Hwy. | Section | Job | Br. Type | Rdwy. Width | Curbs or Walks | Length | Sq. Ft. | COST Unit | COST Total |
|---|---|---|---|---|---|---|---|---|---|
| I205 | Oregon | Col. Riv. Br. Assume 6' shy on rt + 2 rdys 24' + 10' median | | | | | | | |
| | | Sta 0+00 to 28+00 | Stl. Truss | 70' | 2@2' | 2800 | 201600 | $27^{00}$ | 5,443,200 |
| | | Piers No 1 and 2 @ 50' and 80' ht. | | | | | ht 130' | $1600^{00}$ | 208,000 |
| | | " No. 3 | | | | | 100' | 2100 | 210,000 |
| | | " No 4, 5, & 6 | 120', 135 & 150 ht. | | | | 405' | 2500 | 1,012,500 |
| | Price by Extrapolation | " No 7, 8 and 9 | 170, 185 & 190 ht. | | | | 545' | 2800 | 1526,000 |
| | | Approach to Sta 32+50 | Concr. | 70' | 2@2' | 450 | 32,400 | $12^{00}$ | 388,800 |
| | | | | | Total | | | $ | 8,788,500 |
| I 205 | Washington | North from ℄ of channel | | | | | | | |
| | | Sta 0+00 to 21+50 | Stl. truss | 70 | 2@2 | 2150 | 154800 | $27^{00}$ | 4,179,600 |
| | Price by Extrapolation | Piers No 10, 11 & 12 = 190' + 185' + 165' | | | | | ht 540' | 2800 | 1,512,000 |
| | | " No 13 | | | | | 135' | 2500 | 337,500 |
| | | " No 14 | | | | | 90' | 2100 | 189,000 |
| | | " No 15 & 16 | | 75' + 65' | | | 140 | 1600 | 224,000 |
| | | Approach to Sta. 39+25 | Conc. | 70 | 2@2 | 1775 | 127800 | $12^{00}$ | 1,533,600 |
| | | | | | | | | | 7,975,700 |

Comparing with 1956 price for 56' rdy and 5572' length we get

$\frac{7175'}{5572} \times \frac{72 \text{ wide}}{58} \times 10,100,000$ = $ 16,150,000 against 16,764,200

RECEIVED
MAY [illegible] - 1960
FOR FILING

Const
R/W

1666

May 4, 1960

Mr. C. G. Polk
Division Engineer
Bureau of Public Roads
State Highway Building
Salem, Oregon

Re: Your File 08-35.3
Project I-205-7(1)0
Proposed Columbia River
Crossing-Laurelhurst Freeway

Dear Sir:

In reply to your letter of April 25 concerning the proposed northerly terminus of the Laurelhurst Freeway, I am submitting a copy of the proposed Columbia River crossing and the profile grades for your information.

You will note that the proposed extension of the airport in the westerly direction is taken into consideration and that the grades proposed are free of the civilian clear zone but encroach slightly upon the military zone at approximately Station 20 out over the Columbia River. This plan has been presented to the Port of Portland and it has indicated that it is in accord with this proposal.

You will also note from the plan that we have tied into the line shown on the map furnished to the Washington State Highway Department in September of 1957. Right of way reserved by the State of Washington through the housing development in Vancouver will still be necessary under this revised Columbia River crossing.

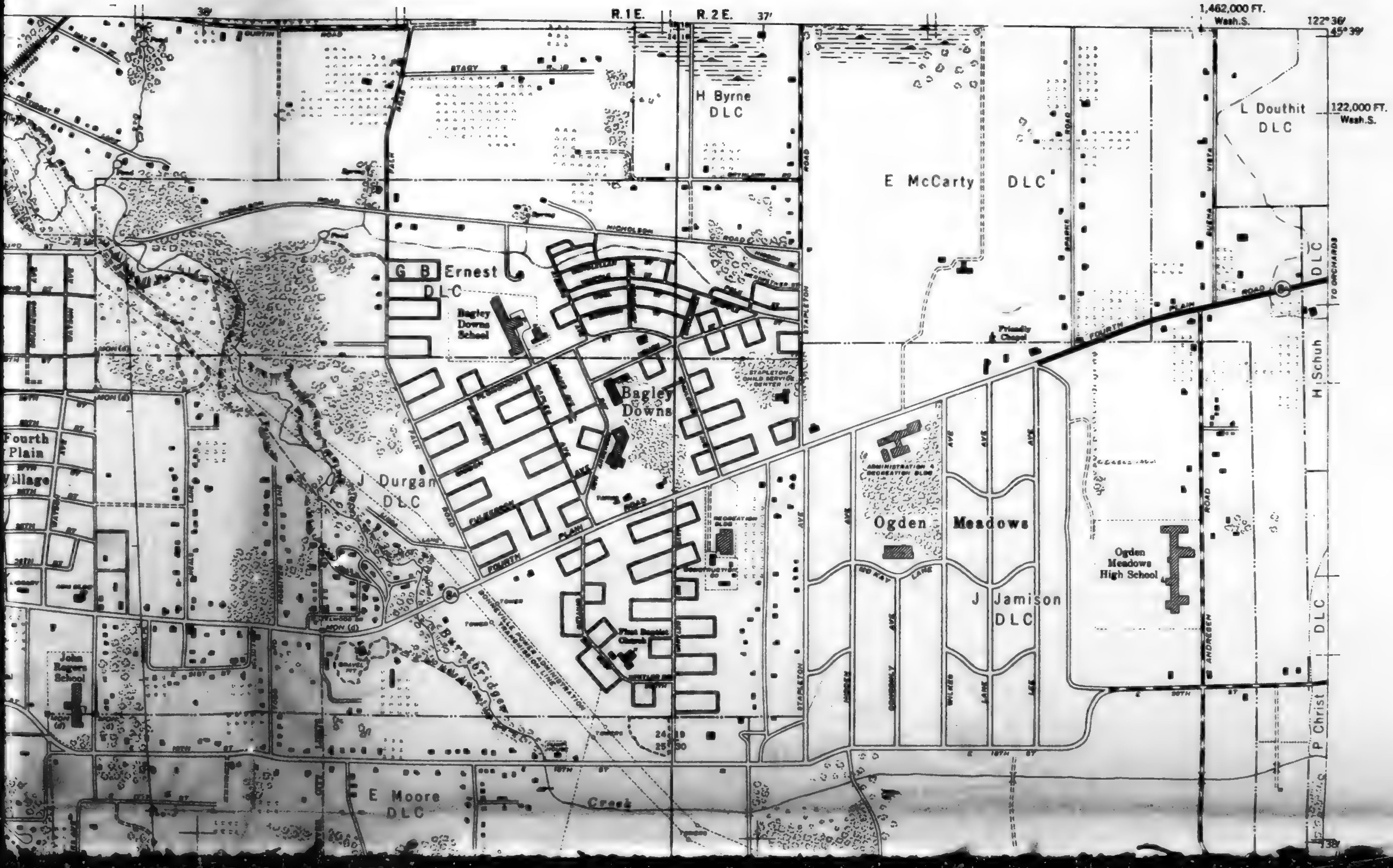
Very truly yours,

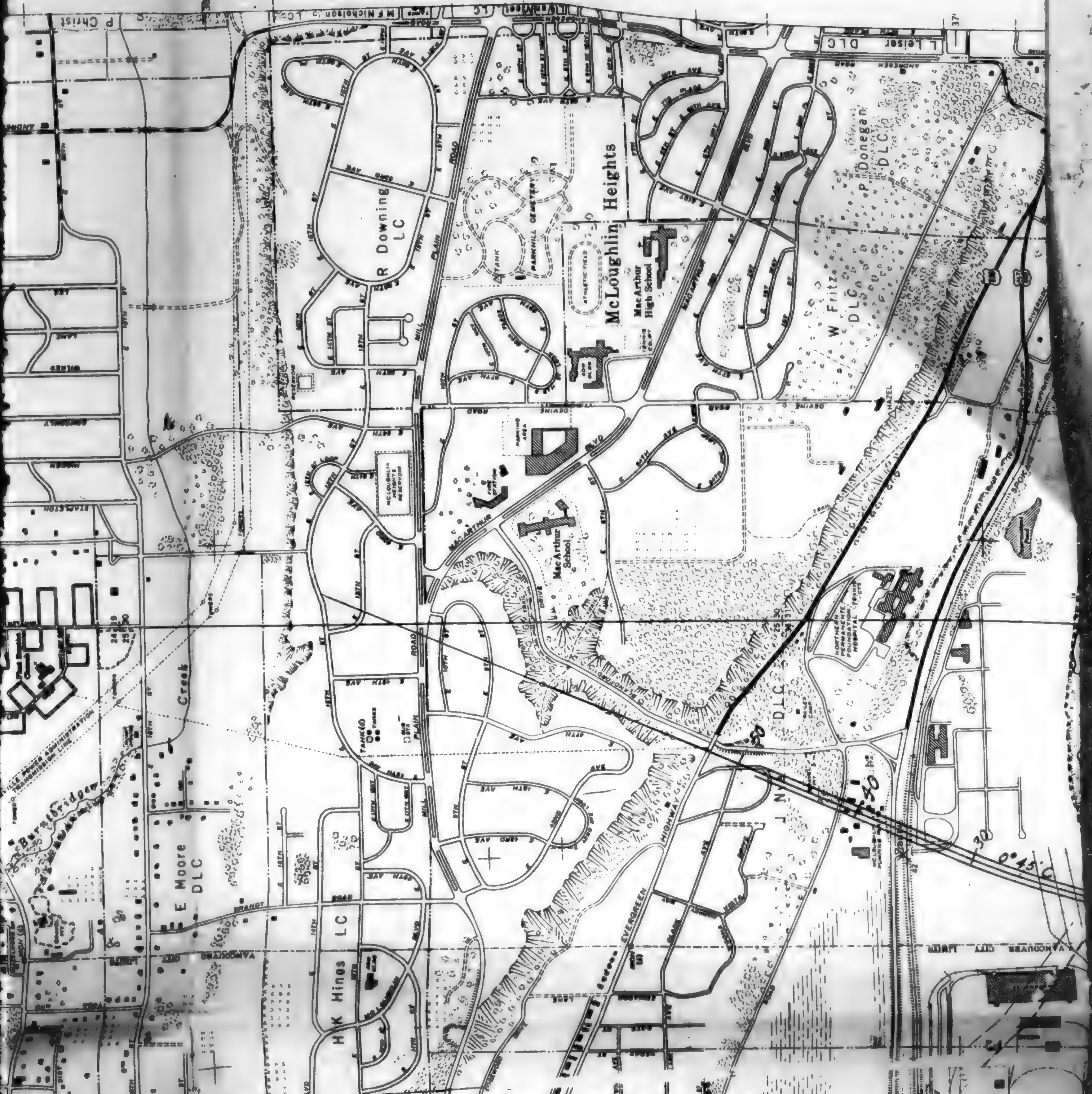
Forrest Cooper
Deputy State Highway Engineer

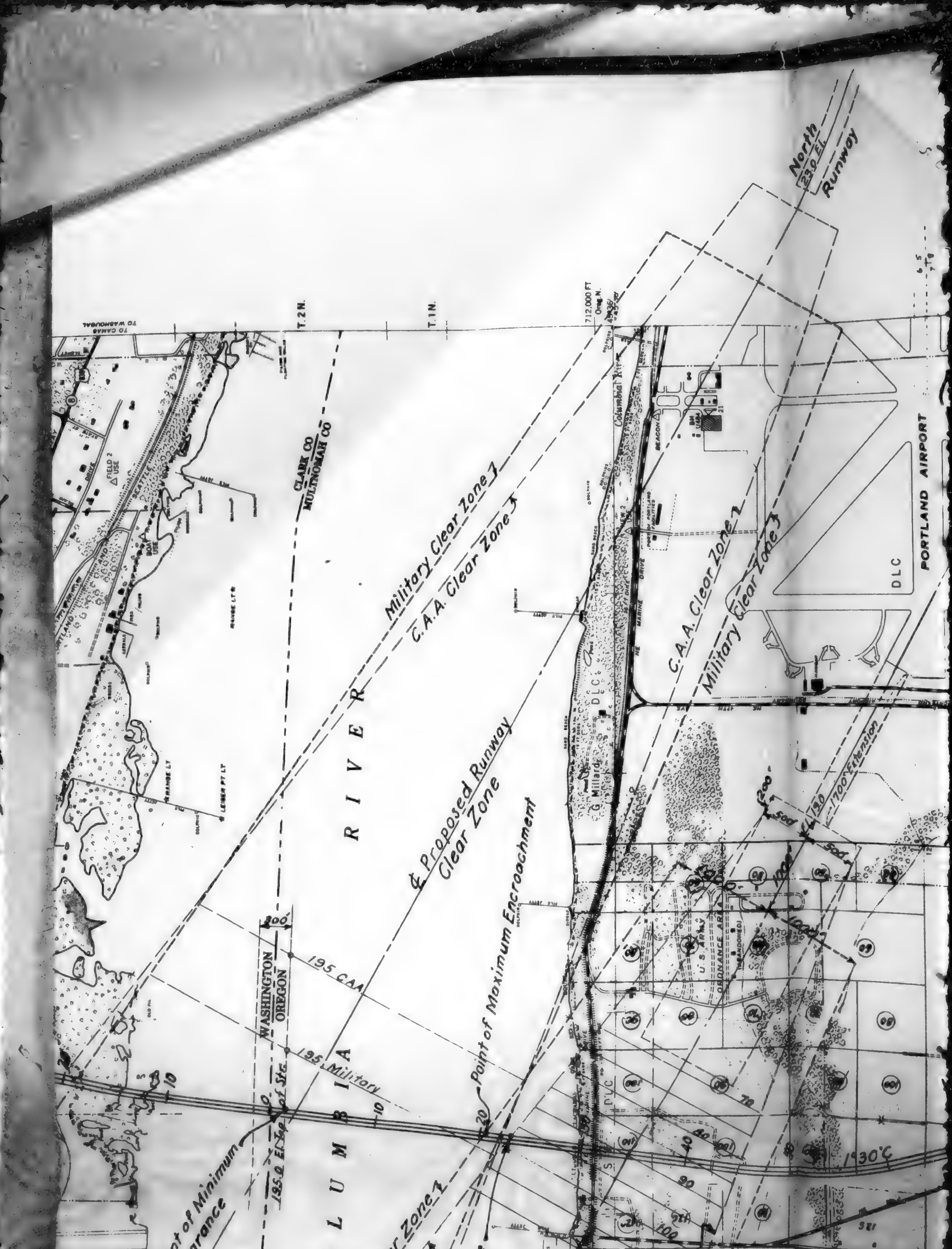
Encl.

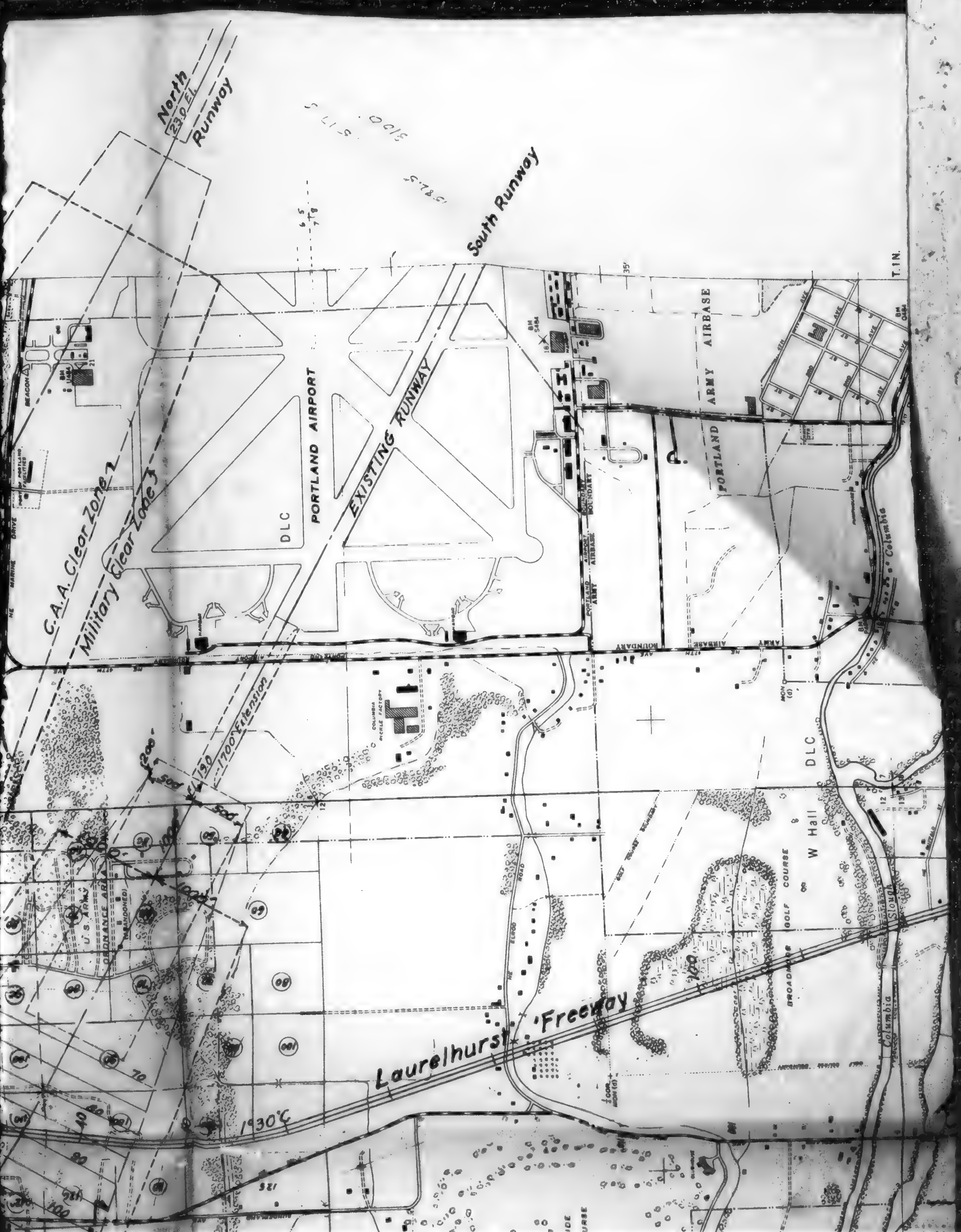
cc Mr. W. C. Williams
Mr. Tom Edwards

GKA:jp:jw fn

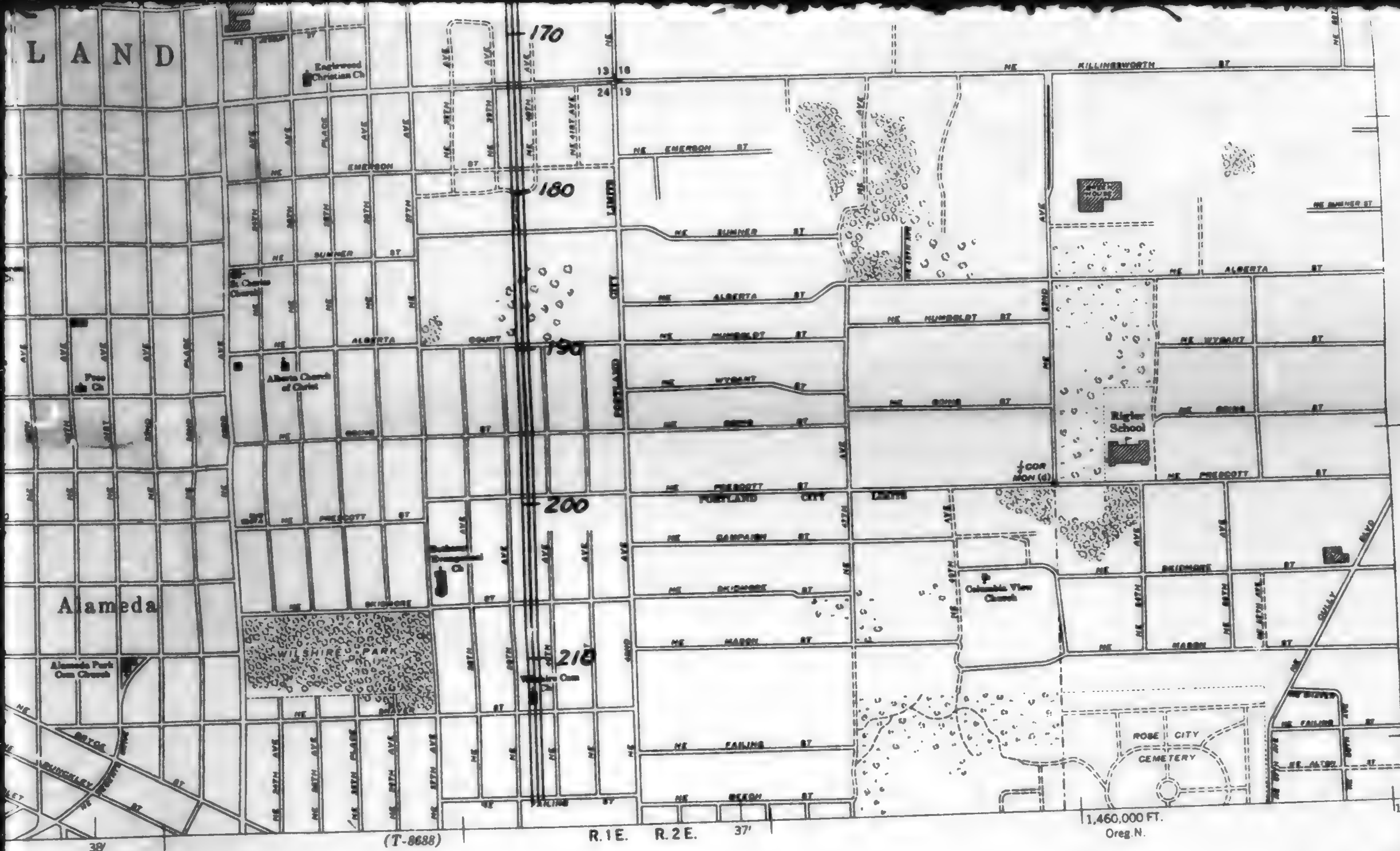

R.1E.
R.2E.
37'
38'
1,462,000 FT. Wash.S.
122°36'
45°39'
122,000 FT. Wash.S.
L Douthit DLC
H Byrne DLC
E McCarty DLC
H Schuh DLC
P Christ DLC
TO ORCHARDS
G B Ernest DLC
Bagley Downs School
Bagley Downs
Friendly Chapel
Stapleton Child Service Center
Administration & Recreation Bldg
Ogden Meadows
Ogden Meadows High School
J Jamison DLC
Recreation Bldg
J Durgan DLC
Fourth Plain Village
John Rogers School
E Moore DLC
Burnt Bridge
Creek
Bonneville Power Administration Transmission Line
Nicholson Road
Stapleton Road
Fourth Plain
Andresen Road
Buena Vista
Sparks Road
Stapleton Ave
Ogden Ave
McKay Lane
18th St
28th St
Stacy
24 25 30 29
38'


P Christ
M F Nicholson LC
L Leiser DLC
P Donegan DLC
R Downing LC
McLoughlin Heights
Parkhill Cemetery
Tank
Athletic Field
MacArthur High School
Tennis Court
W Fritz DLC
Devine Road
Mill Plain Road
MacArthur Blvd
McLoughlin Heights Reservoir
MacArthur School
Northern Permanente Foundation Hospital
Hazel
DLC
Creek
Burnt Bridge Creek
E Moore DLC
Brandt Road
Vancouver City Limits
H K Hines LC
Evergreen Highway
Harvey School
John Rogers School
Athletic Field
Stack
Tennis Court
Portland and Seattle
0°45' C
30
E R

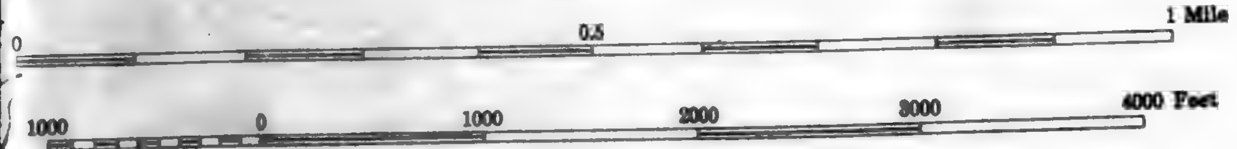

North
230 El.
Runway
712,000 FT
Oreg. N.
T. 2 N.
T. 1 N.
TO CAMAS
TO WASHOUGAL
CLARK CO
MULTNOMAH CO
Military Clear Zone 1
C.A.A. Clear Zone 3
RIVER
COLUMBIA
℄ Proposed Runway
Clear Zone
Point of Maximum Encroachment
195 CAA
195 Military
WASHINGTON
OREGON
200'
195.0 El.
℄ of Sta.
Point of Minimum
Clearance
Clear Zone 1
Zone 3
Columbia River
BEACON
NE MARINE DRIVE
C.A.A. Clear Zone 2
Military Clear Zone 3
DLC
PORTLAND AIRPORT
1700' Extension
500'
200'
1900'
Millard
U.S. ARMY
ORDNANCE AREA
10
20
40
70
90
100
1930 C
SEATTLE
FIELD 2
USE


North Runway
23.0 El.
South Runway
C.A.A. Clear Zone 2
Military Clear Zone 3
PORTLAND AIRPORT
EXISTING RUNWAY
DLC
PORTLAND ARMY AIRBASE
AIRBASE BOUNDARY
PORTLAND ARMY AIRBASE BOUNDARY
T.1N.
BEACON
NE MARINE DRIVE
COLUMBIA PICKLE FACTORY
1700' Extension
U.S. ARMY ORDNANCE AREA (ABANDONED)
Laurelhurst 'Freeway
1930'C
W Hall
DLC
BROADMOOR GOLF COURSE
Columbia Slough
Columbia
100
90
80
70
60
40

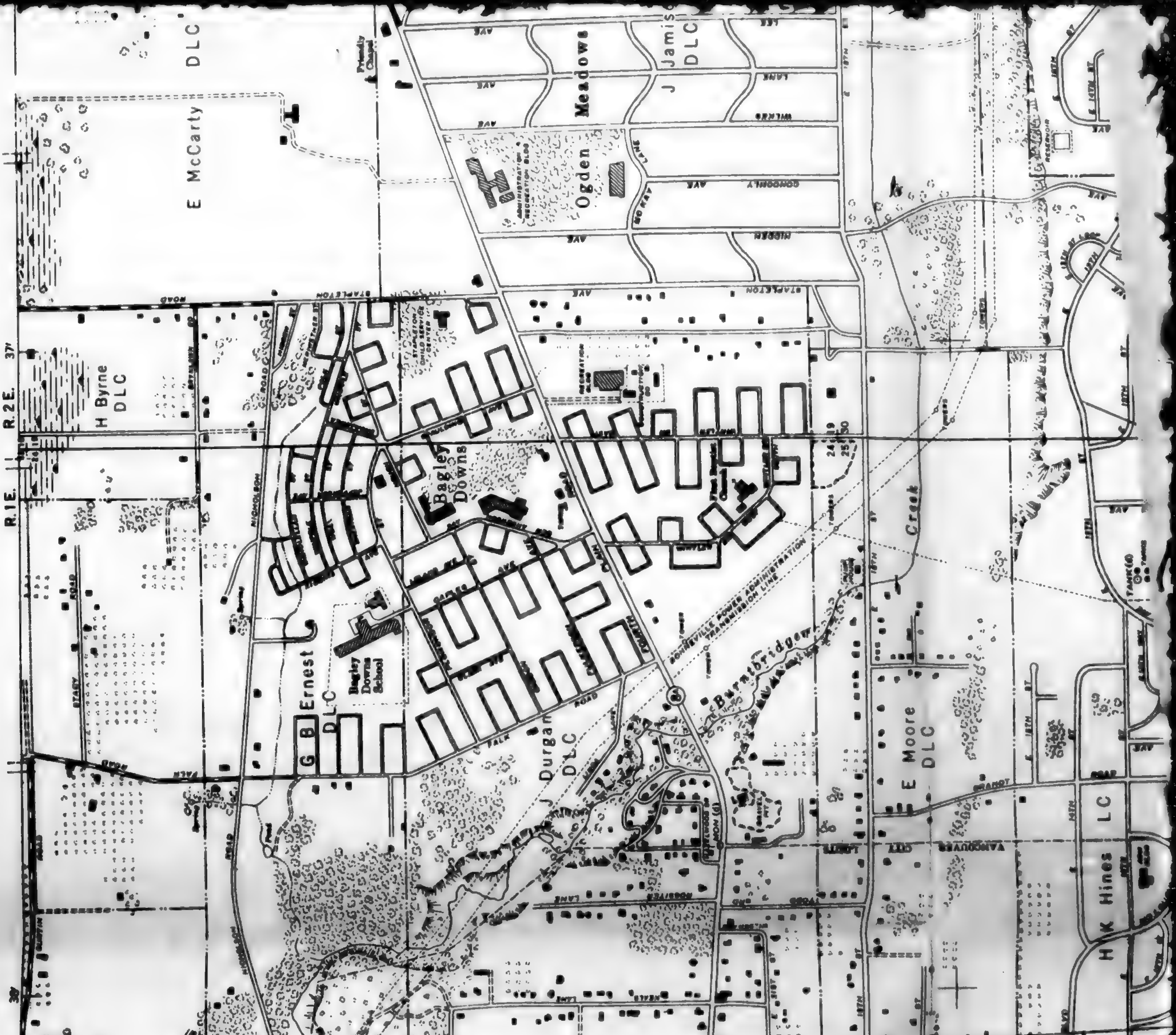
34'
Slough
DLC
A Whittaker
Whittaker School
STACK
NE COLUMBIA BOULEVARD
NE LOMBARD STREET
30
UNION PACIFIC
BM R245
100
0°45'C
130
140
150
160
170
180
190
200
NE HOLMAN ST
NE AINSWORTH ST
NE SIMPSON ST
NE SIMPSON COURT
NE JARRETT ST
NE KILLINGSWORTH ST
NE EMERSON ST
NE ALBERTA ST
NE HUMBOLDT ST
NE WYGANT ST
Killingsworth Gardens Community Church
Kennedy Sch
Alberta Church of Christ
St Charles Church
Second Evangelical Church
13
18
24
19
PORTLAND
L A N D

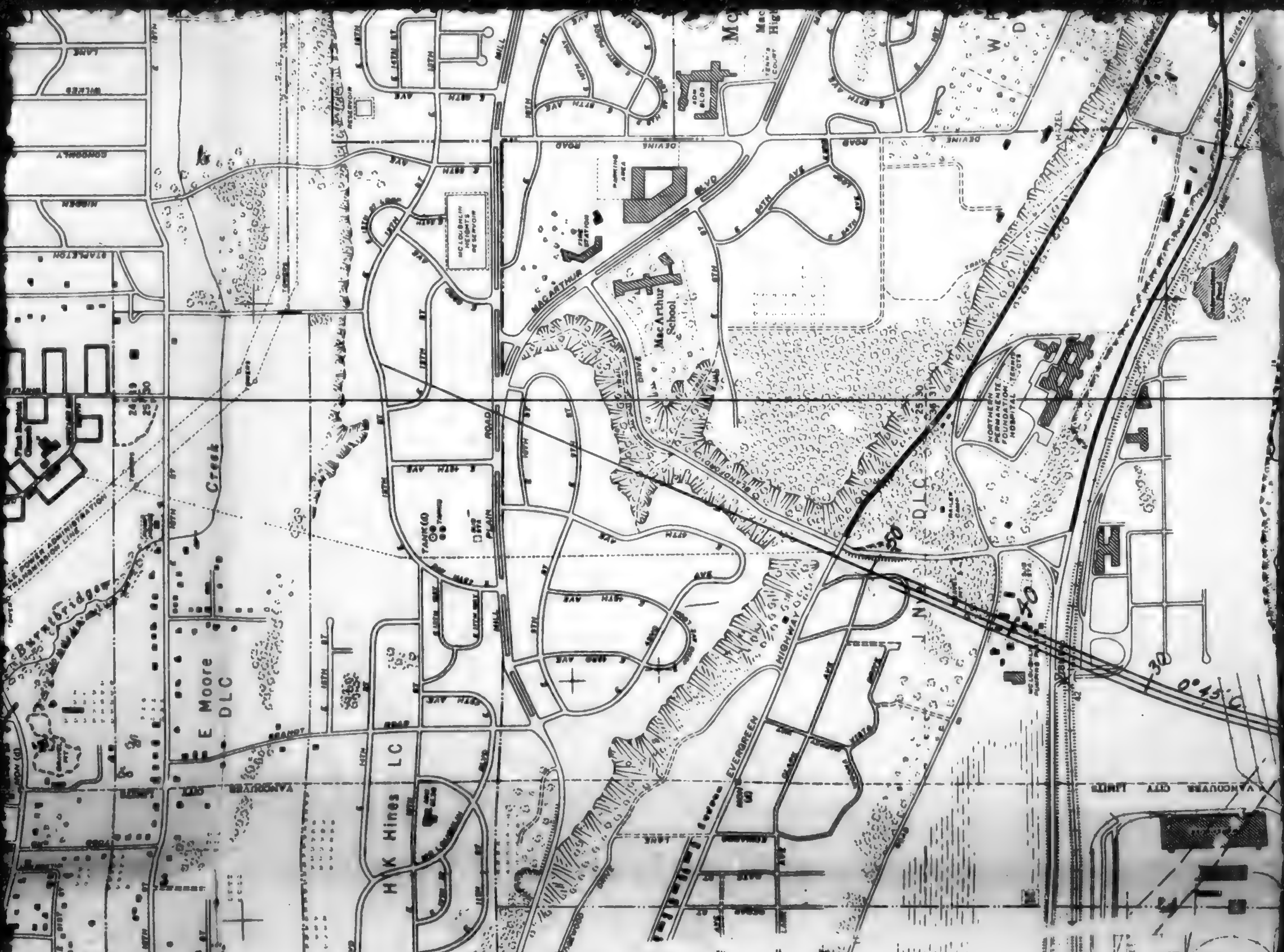

LAND
Alameda
170
180
190
200
210
NE KILLINGSWORTH ST
NE EMERSON ST
NE SUMNER ST
NE ALBERTA ST
NE HUMBOLDT ST
NE WYGANT ST
NE GOING ST
NE PRESCOTT ST
PORTLAND CITY LIMITS
NE SKIDMORE ST
NE MASON ST
NE FAILING ST
NE BEECH ST
Englewood Christian Ch
Alberta Church of Christ
Wilshire Park
Alameda Park Com Church
Rigler School
Columbia View Church
ROSE CITY CEMETERY
¼ COR MON (d)
13 18
24 19
694,000 FT. Oreg. N.
1,460,000 FT. Oreg. N.
45°33′
122°36′
38′
37′
(T-8688)
R.1E. R.2E.

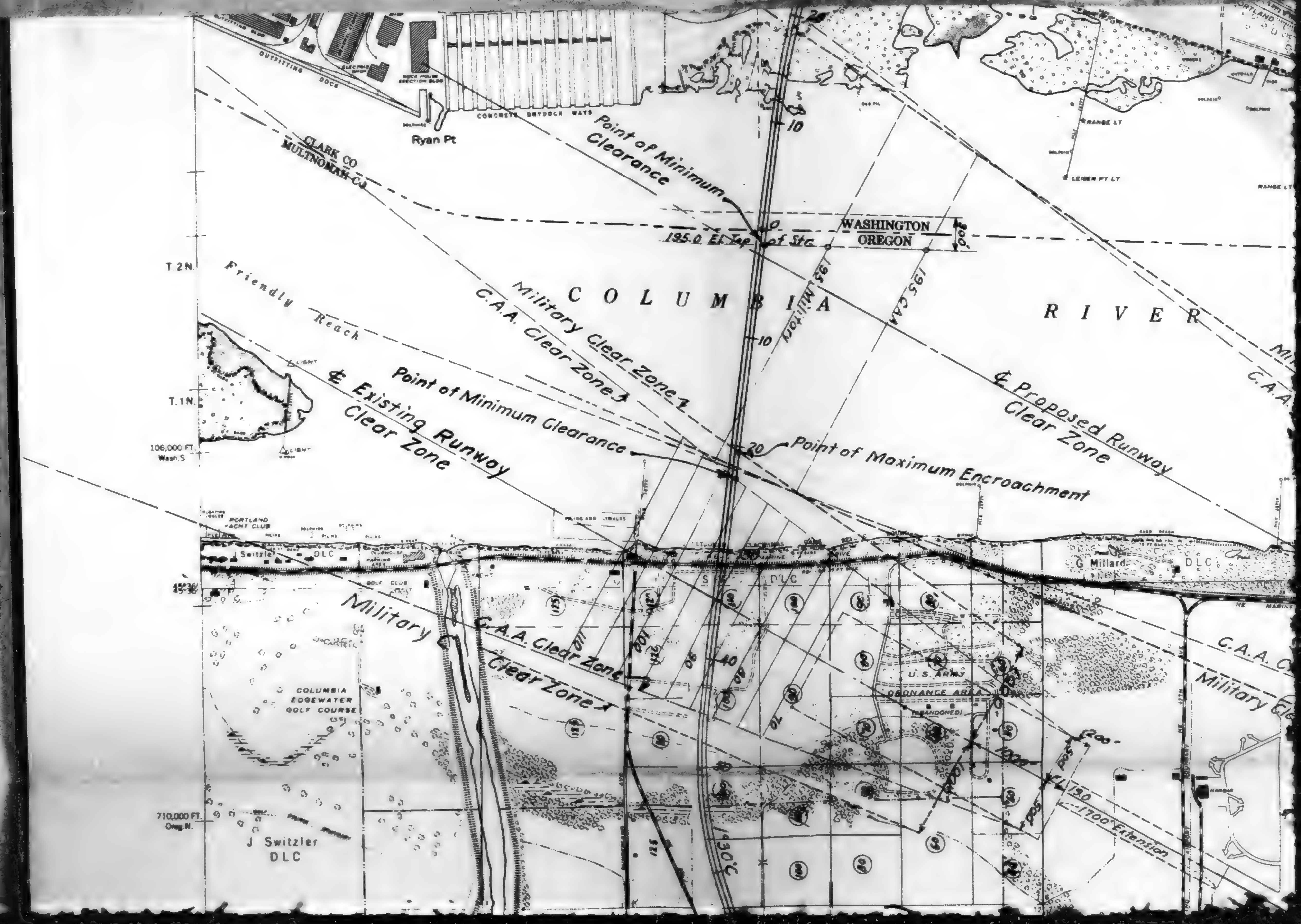
Scale 1:9600

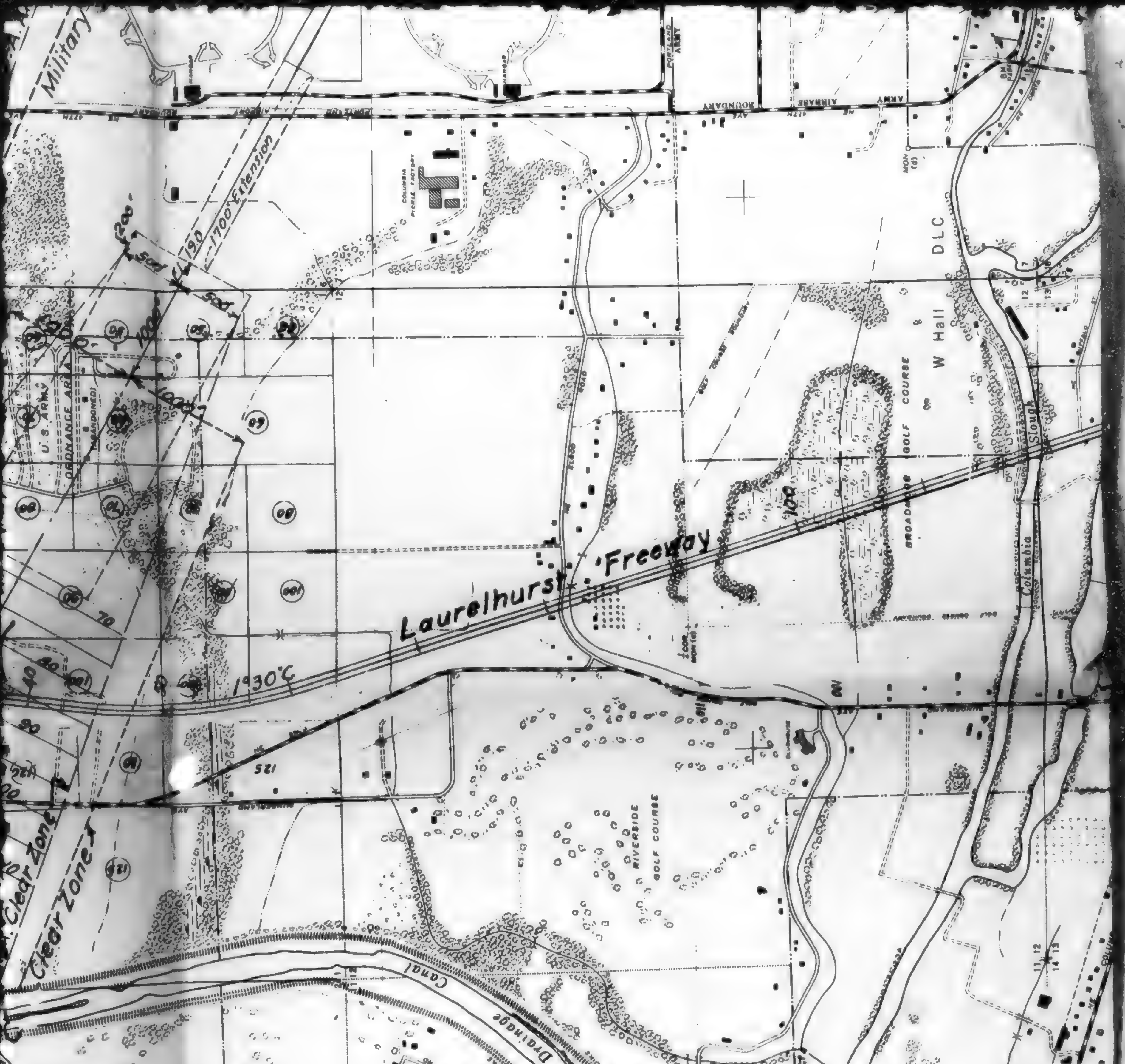

0
0.5
1 Mile
1000
0
1000
2000
3000
4000 Feet

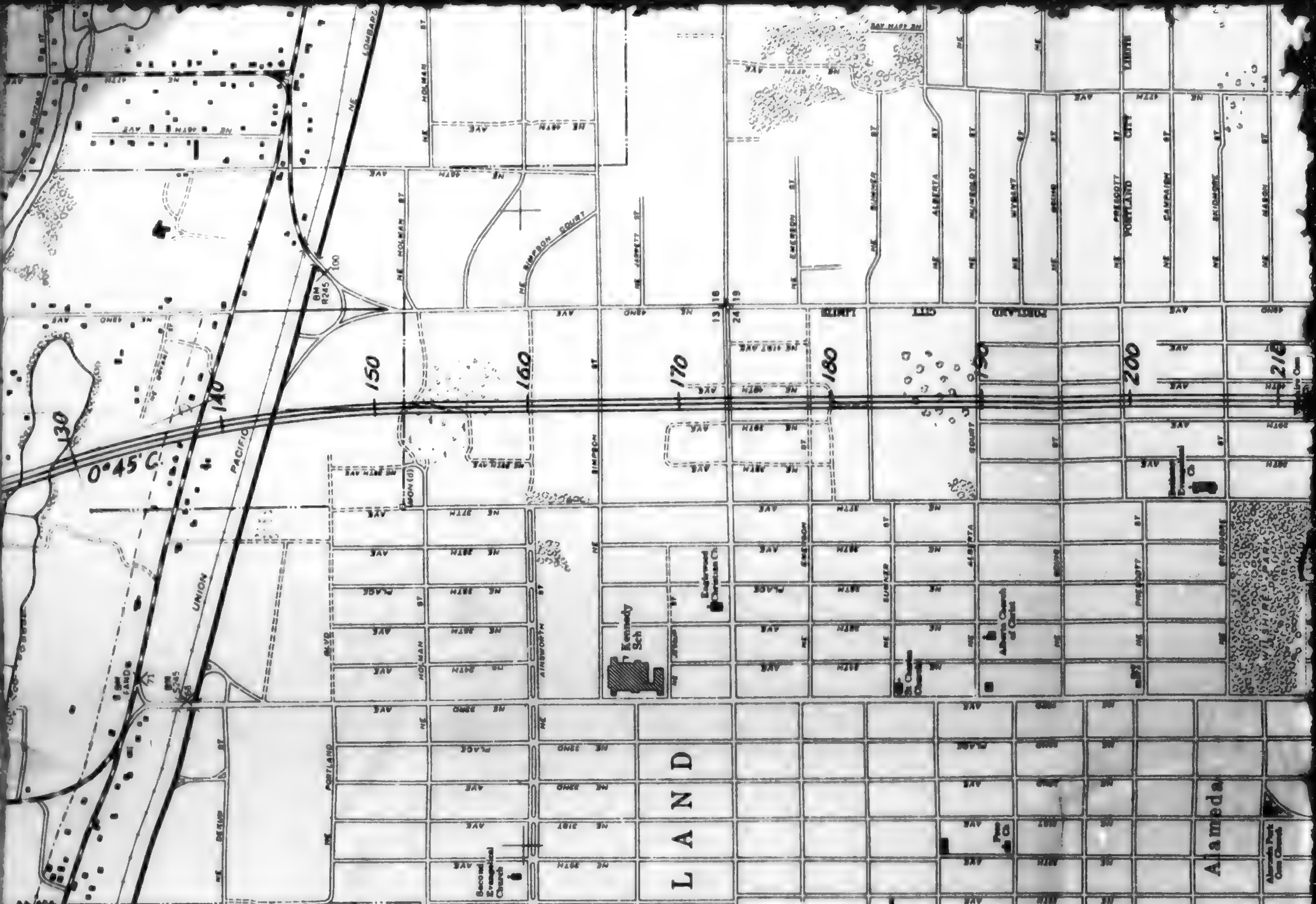
Laurel [illegible] Volume [illegible]


E McCarty DLC
Ogden Meadows
J Jamison DLC
Stapleton Road
H Byrne DLC
R.2E.
R.1E.
37
Bagley Downs
G B Ernest DLC
Bagley Downs School
Falk Road
J Durgan DLC
Bonneville Power Administration Transmission Line
Burntbridge Creek
E Moore DLC
H K Hines LC
38
Fourth Plain Village
John Rogers School
Grand Ave
T J Thornton DLC
R Rockett DLC
Fourth Plain Road
Vancouver City Reservoirs
Tank
J Maney LC
Washington State School For the Blind
VANCOUVER
1,452,000 FT. Oreg. N.
730,000 FT. Oreg. N.
122°37'30"
45°39'


MacArthur School
McLoughlin Heights Reservoir
Parking Area
MacArthur Blvd
Devine Road
Northern Permanente Foundation Hospital
D L C
Creek
Burnt Bridge
E Moore DLC
H K Hines LC
Vancouver City Limits
Evergreen Highway
Harney School
Athletic Field
Stack
Grand
Washington State School for the Deaf
John Rogers School
Vancouver City Cemetery
J Maney LC
Washington State School for the Blind
Vancouver City Reservoirs
Tank
V A N C O U V E R
W Ryan DLC
Abandoned
Vancouver Airport
Spokane Portland and Seattle
Vancouver Shipyard
30
0°45' C
30
37'


Ryan Pt
CONCRETE DRYDOCK WAYS
OUTFITTING DOCK
DECK HOUSE ERECTION BLDG
CLARK CO
MULTNOMAH CO
Point of Minimum Clearance
195.0 El. Top of Stc.
WASHINGTON
OREGON
200'
RANGE LT
LEIGER PT LT
COLUMBIA RIVER
195 Military
195 C.A.A.
10
20
Friendly Reach
Military Clear Zone
C.A.A. Clear Zone
Point of Minimum Clearance
℄ Existing Runway Clear Zone
℄ Proposed Runway Clear Zone
Point of Maximum Encroachment
T.2N.
T.1N.
106,000 FT. Wash.S
LIGHT
PORTLAND YACHT CLUB
J Switzler DLC
G Millard DLC
GOLF CLUB
Military Clear Zone
C.A.A. Clear Zone
40
70
90
100
110
COLUMBIA EDGEWATER GOLF COURSE
U.S. ARMY ORDNANCE AREA (ABANDONED)
1930 C
1000'
500'
200'
190
1700' Extension
C.A.A. Clear Zone
Military Clear Zone
710,000 FT. Oreg.N.
J Switzler DLC


Military
HANGAR
HANGAR
PORTLAND ARMY AIRBASE BOUNDARY
1700' Extension
F.L. 190
200
500
500
1000
COLUMBIA PICKLE FACTORY
U.S. ARMY ORDNANCE AREA (ABANDONED)
W Hall DLC
BROADMOOR GOLF COURSE
Columbia Slough
100
Laurelhurst Freeway
1930' C
70
40
90
Clear Zone
Clear Zone
RIVERSIDE GOLF COURSE
Peninsula Drainage Canal
COLUMBIA EDGEWATER GOLF COURSE
J Switzler DLC
NE COLUMBIA AVE
35
T.1N.
710,000 FT. Oreg. N.


PORTLAND
Alameda
UNION
PACIFIC
0°45'C
130
140
150
160
170
180
190
200
210
Concordia Academy
Second Evangelical Church
Kennedy Sch
W H Payne DLC
W McClung DLC
LOMBARD
HOLMAN
AINSWORTH
SIMPSON
PORTLAND
UNION AVE
DEKUM
HIGHLAND
PRESCOTT
ALBERTA
SUMNER
EMERSON
WYGANT
HUMBOLDT
34

# PROPOSED LAURELHURST FREEWAY

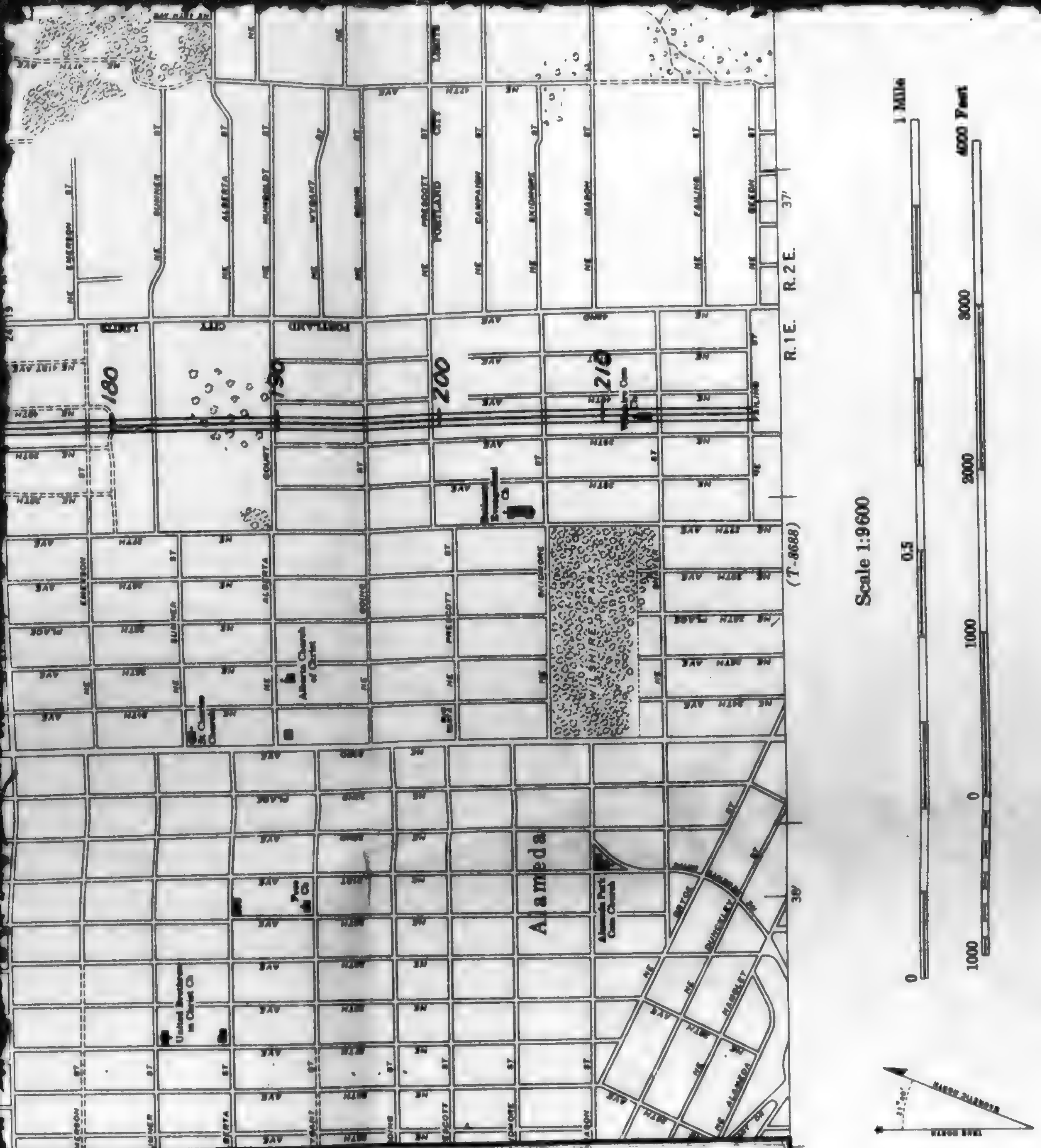
# INTERSTATE BRIDGE

# SHOWING

# PORTLAND AIRPORT CLEAR ZONES

SCALE 1" = 1000'

MARCH 19



180
190
200
210
Alameda
Alameda Park Com. Church
Alberta Church of Christ
United Brethren in Christ Ch.
R.1E.
R.2E.
37'
38'
(T-8688)
Scale 1:9600
1 Mile
0.5
0
4000 Feet
3000
2000
1000
0
1000

## PROPOSED LAURELHURST FREEWAY

## INTERSTATE BRIDGE

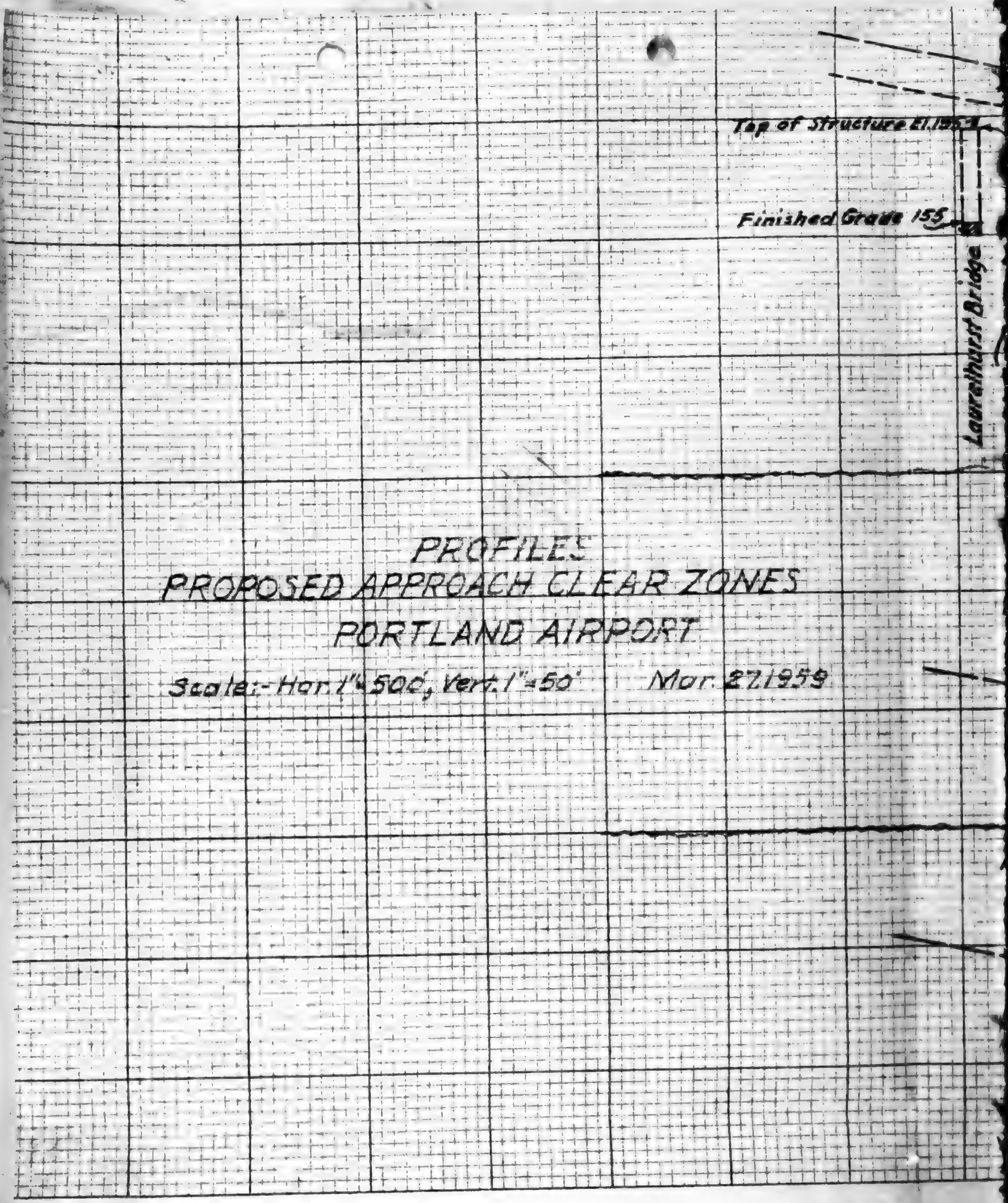
## SHOWING

## PORTLAND AIRPORT CLEAR ZONES

1" = 1000'    MARCH 19,1959

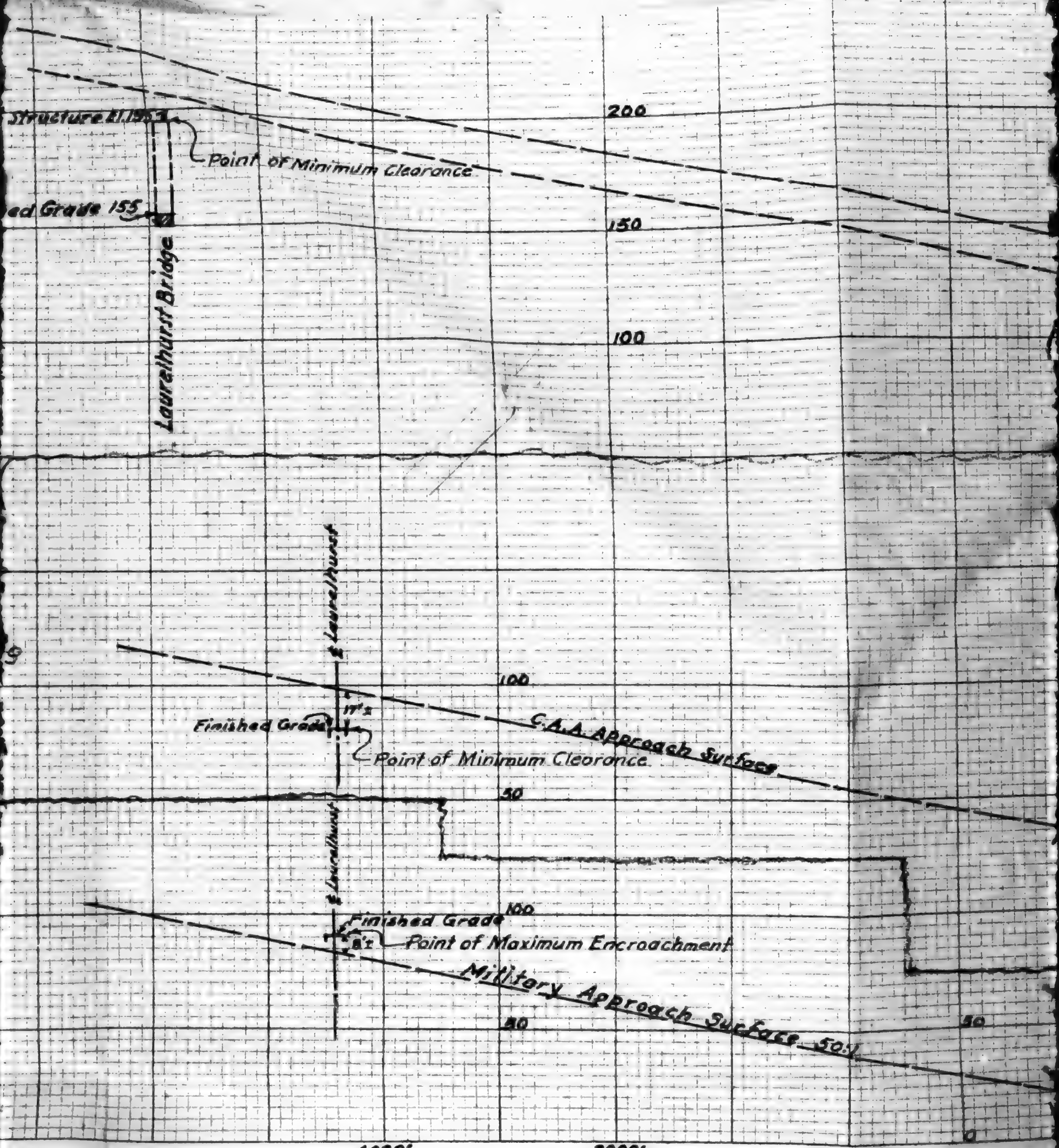
45°33'
122°39'

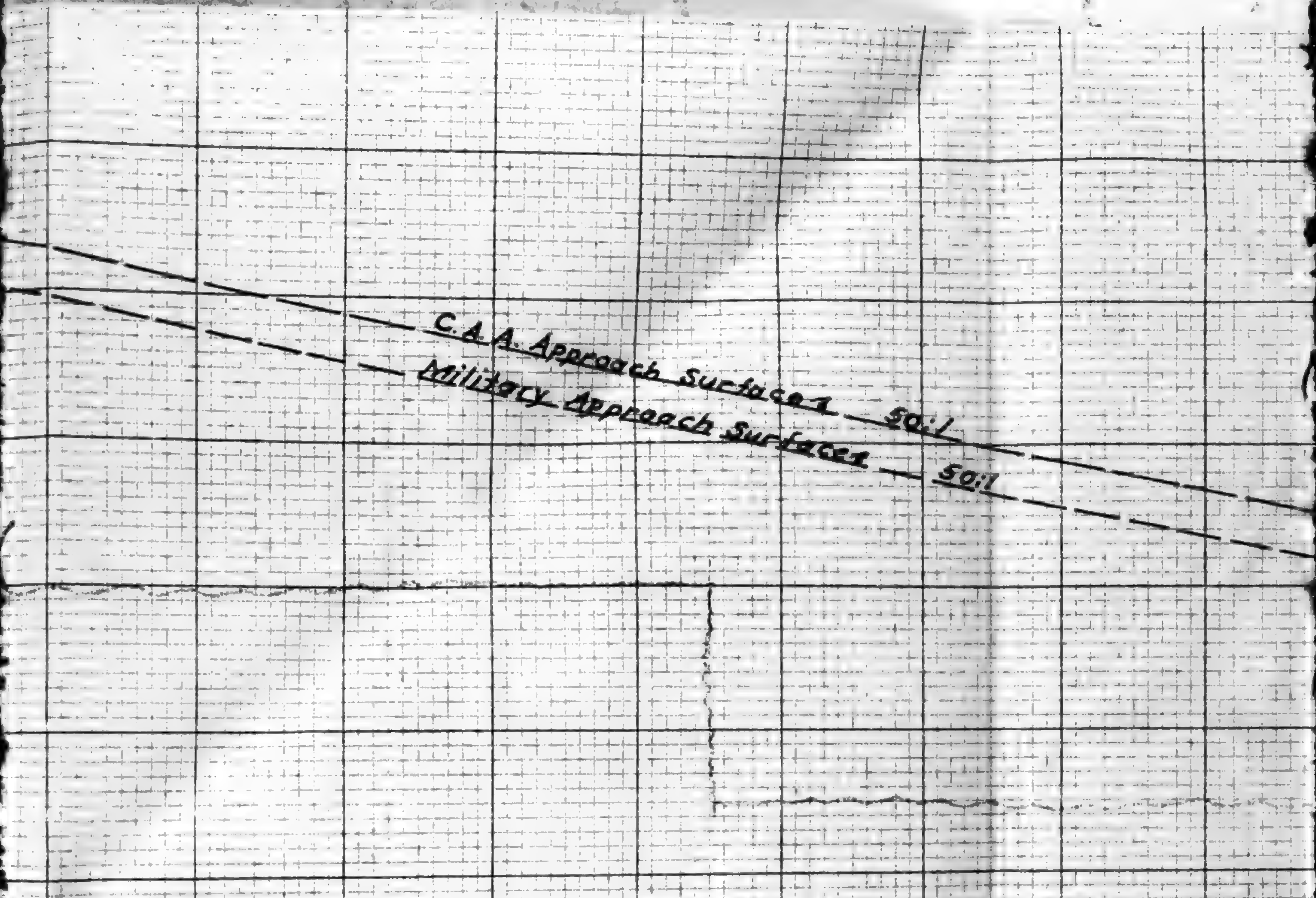
Prop. [illegible]

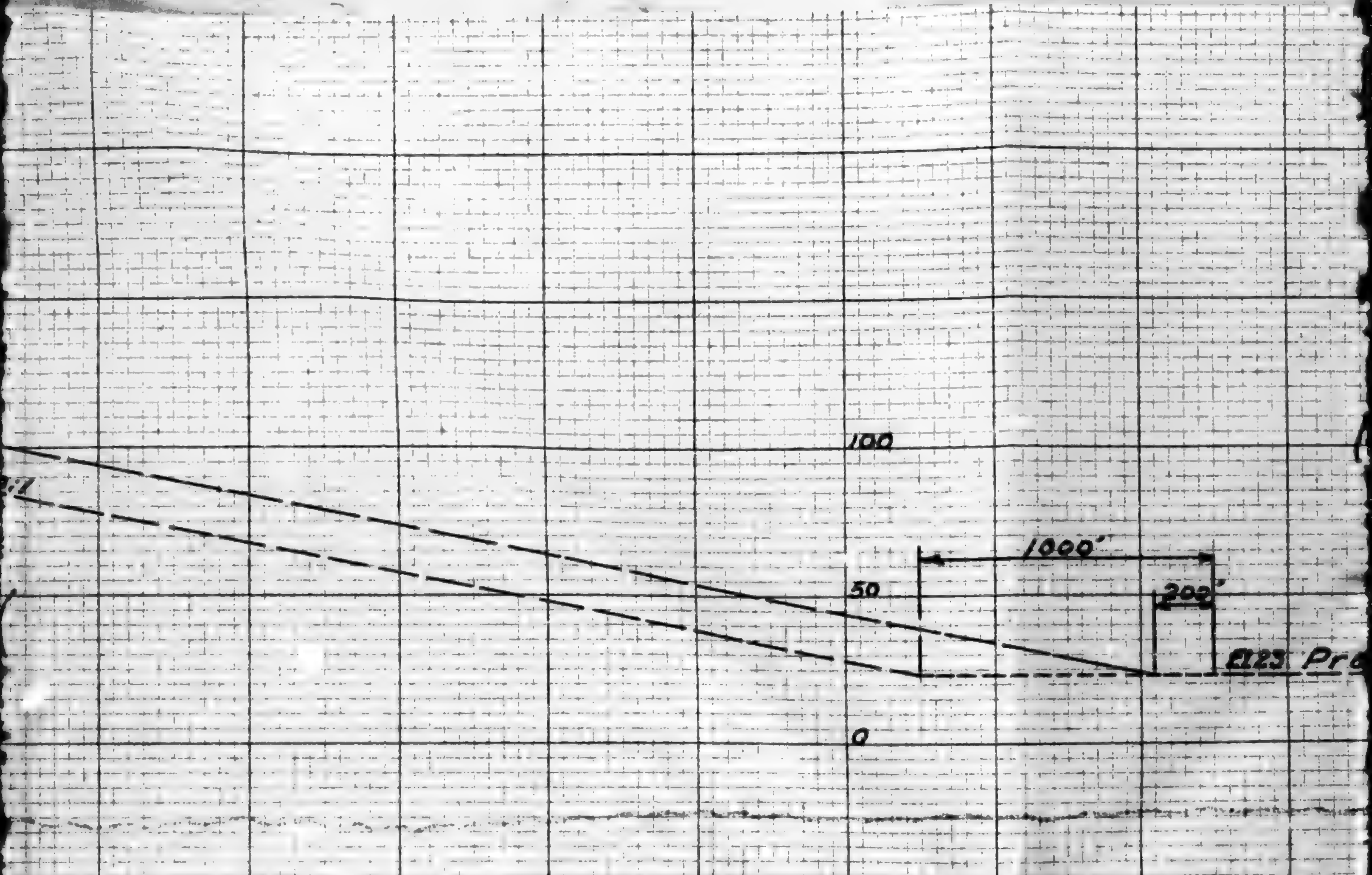

Top of Structure El.1[illegible]
Finished Grade 155
Laurelhurst Bridge

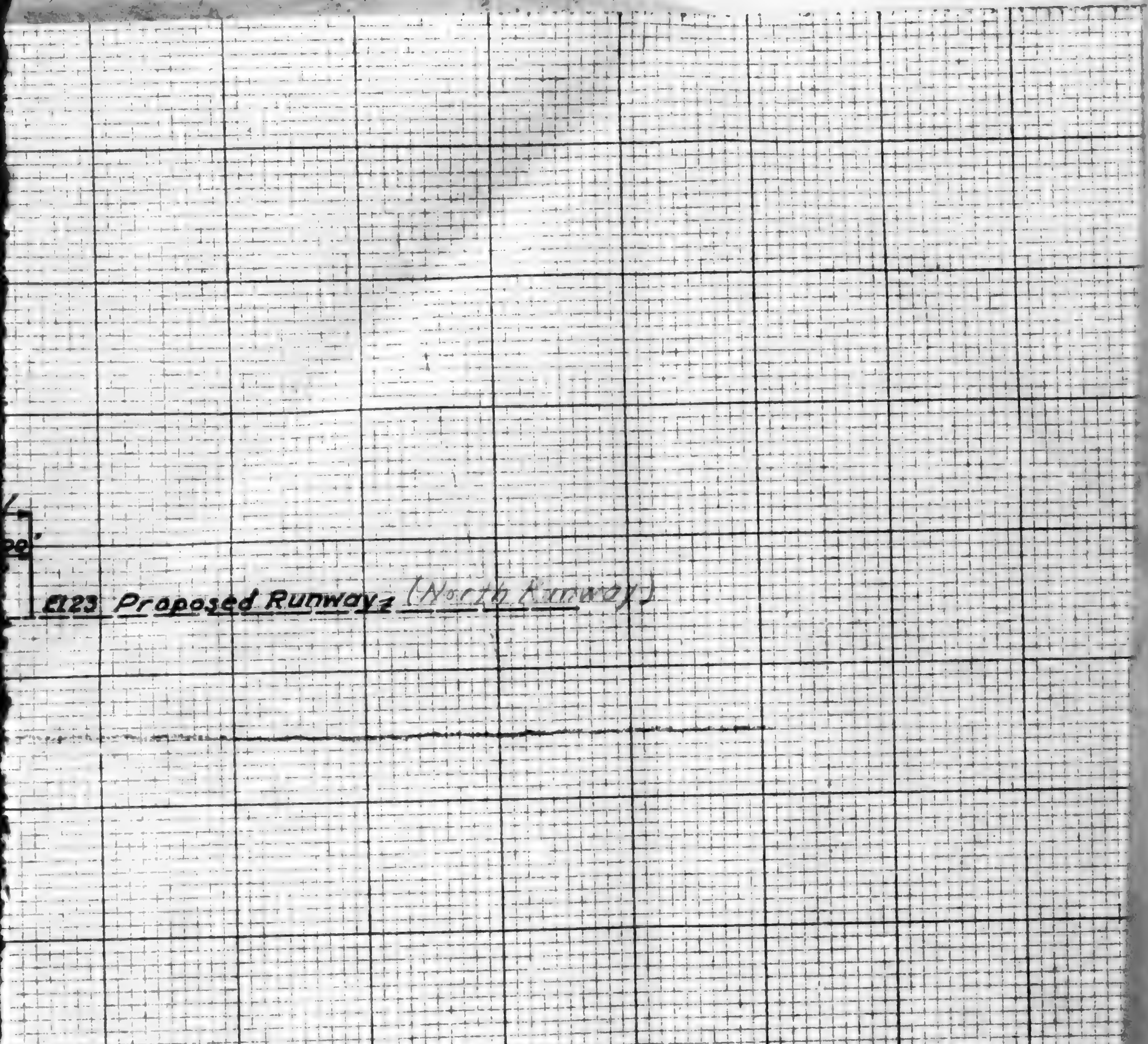
PROFILES
PROPOSED APPROACH CLEAR ZONES
PORTLAND AIRPORT

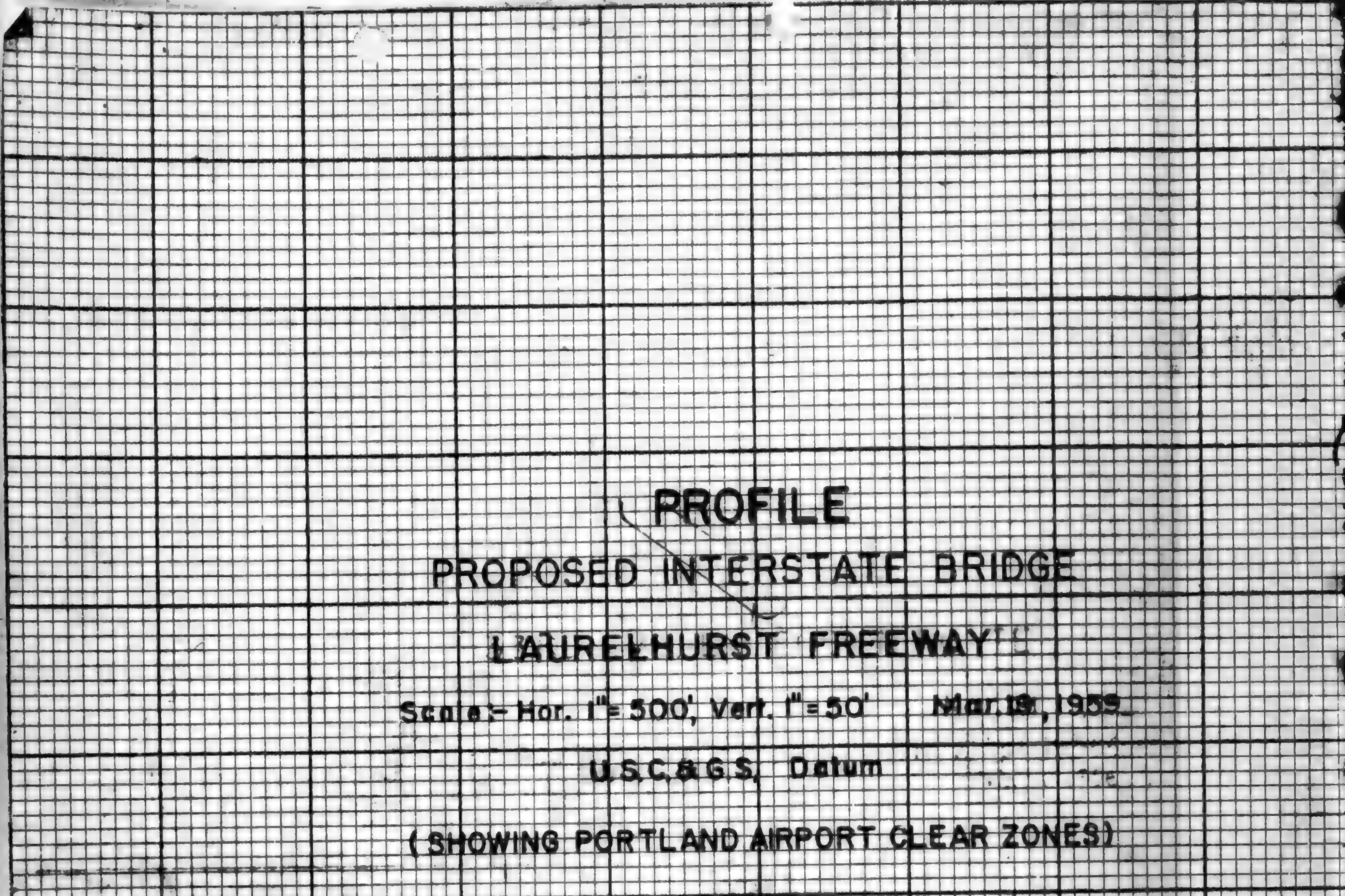
Scale:- Hor. 1"=500', Vert. 1"=50'     Mar. 27 1959


Structure El. 195±
Point of Minimum Clearance
ed Grade 155
Laurelhurst Bridge
200
150
100
℄ Laurelhurst
100
17'±
Finished Grade
Point of Minimum Clearance
C.A.A. Approach Surface
50
℄ Laurelhurst
100
Finished Grade
8'±
Point of Maximum Encroachment
Military Approach Surface 50:1
50
50
0
4000'
3000'
2000'


C.A.A. Approach Surfaces — 50:1
Military Approach Surfaces — 50:1
50
200'
Proposed 1700' Extension
Existing R
0
50
50:1
1000'
Proposed 1700' Extension
Existing Ru
2000'
0
1000'
0


100
50
0
1000'
200'
El23 Pro
sion
Existing Runway El 19 (South Runway)
ension
Existing Runway El. 19 (South Runway)


00'
E123 Proposed Runway 2 (North Runway)



# PROFILE

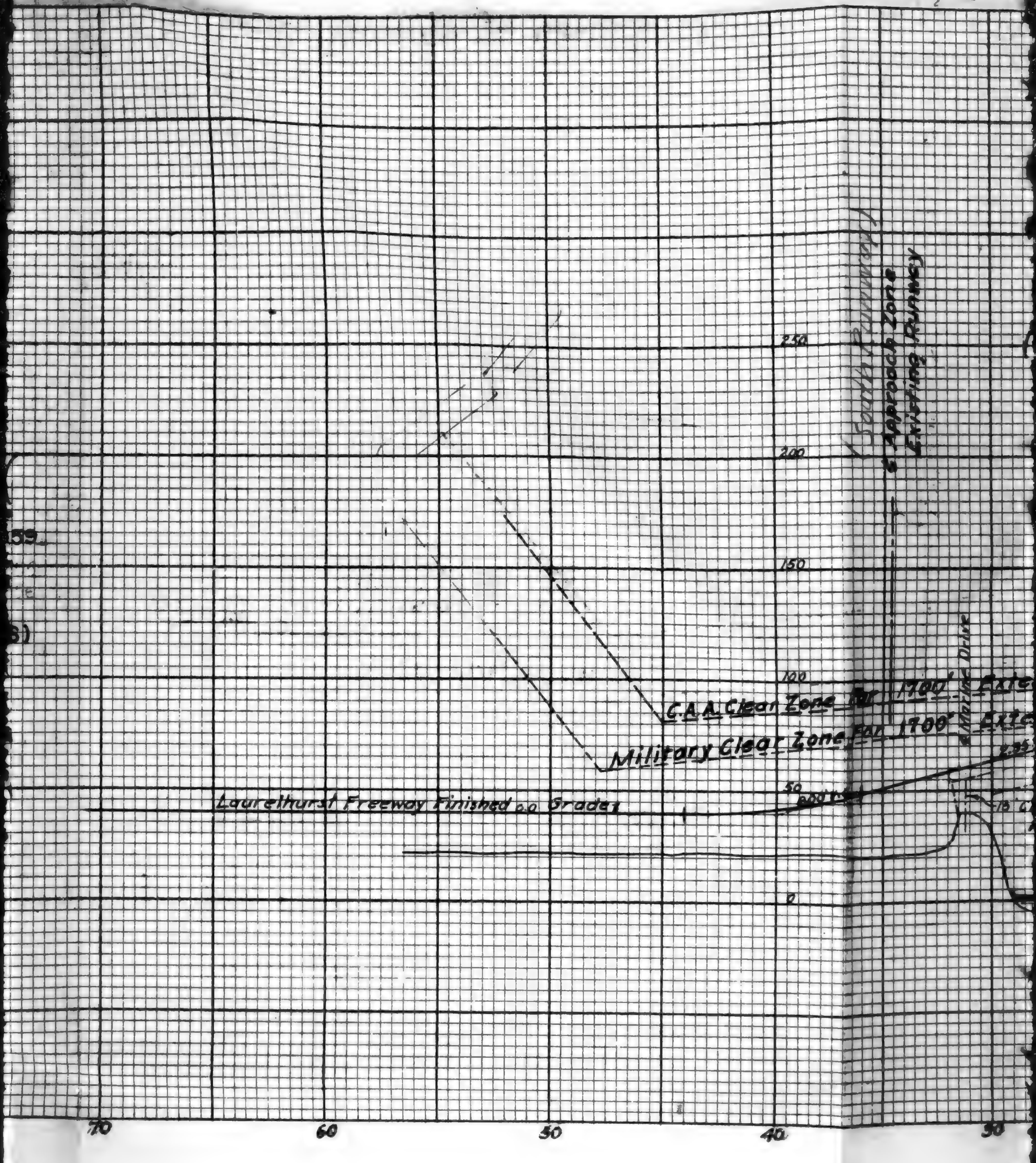
## PROPOSED INTERSTATE BRIDGE

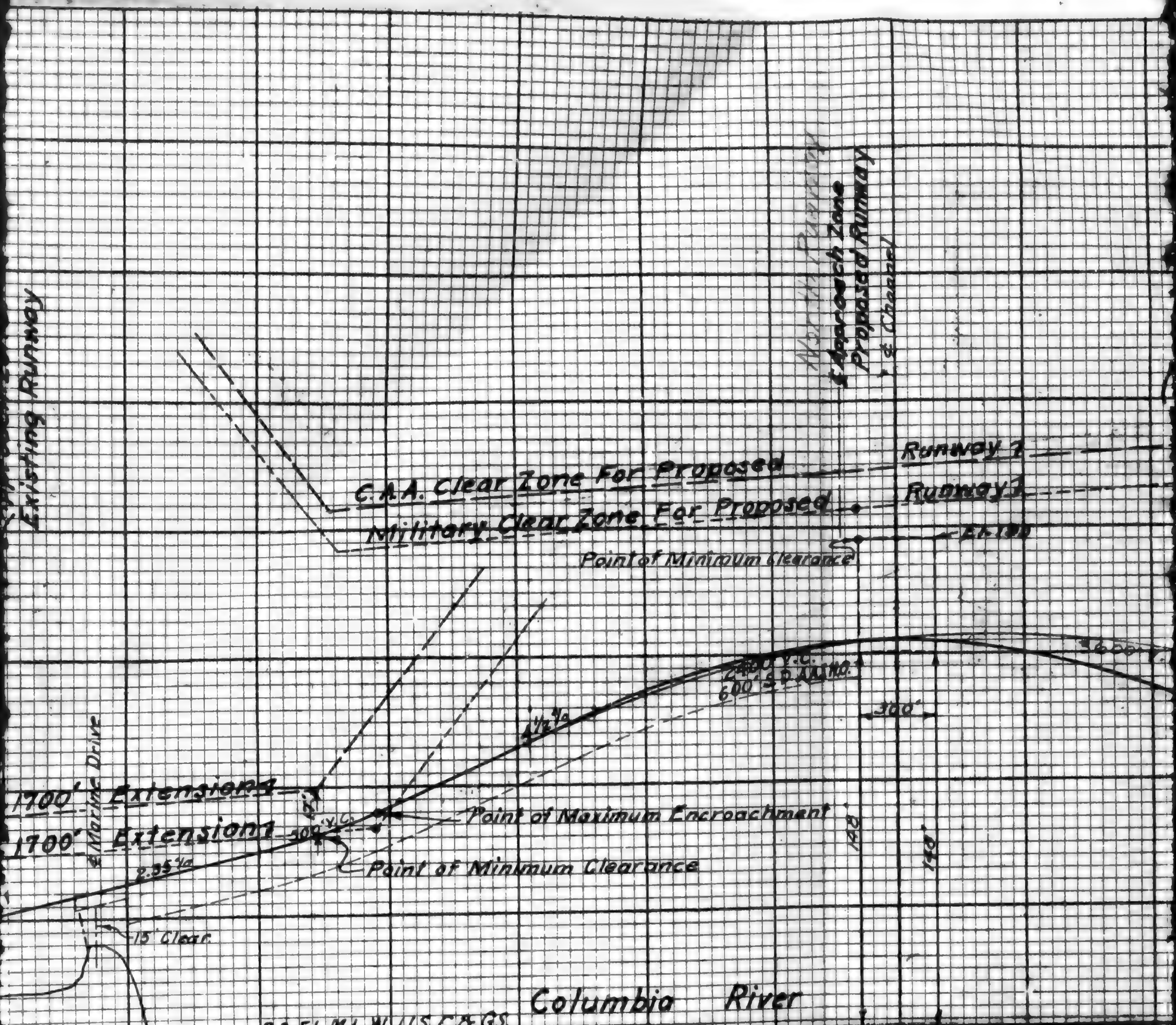
## LAURELHURST FREEWAY

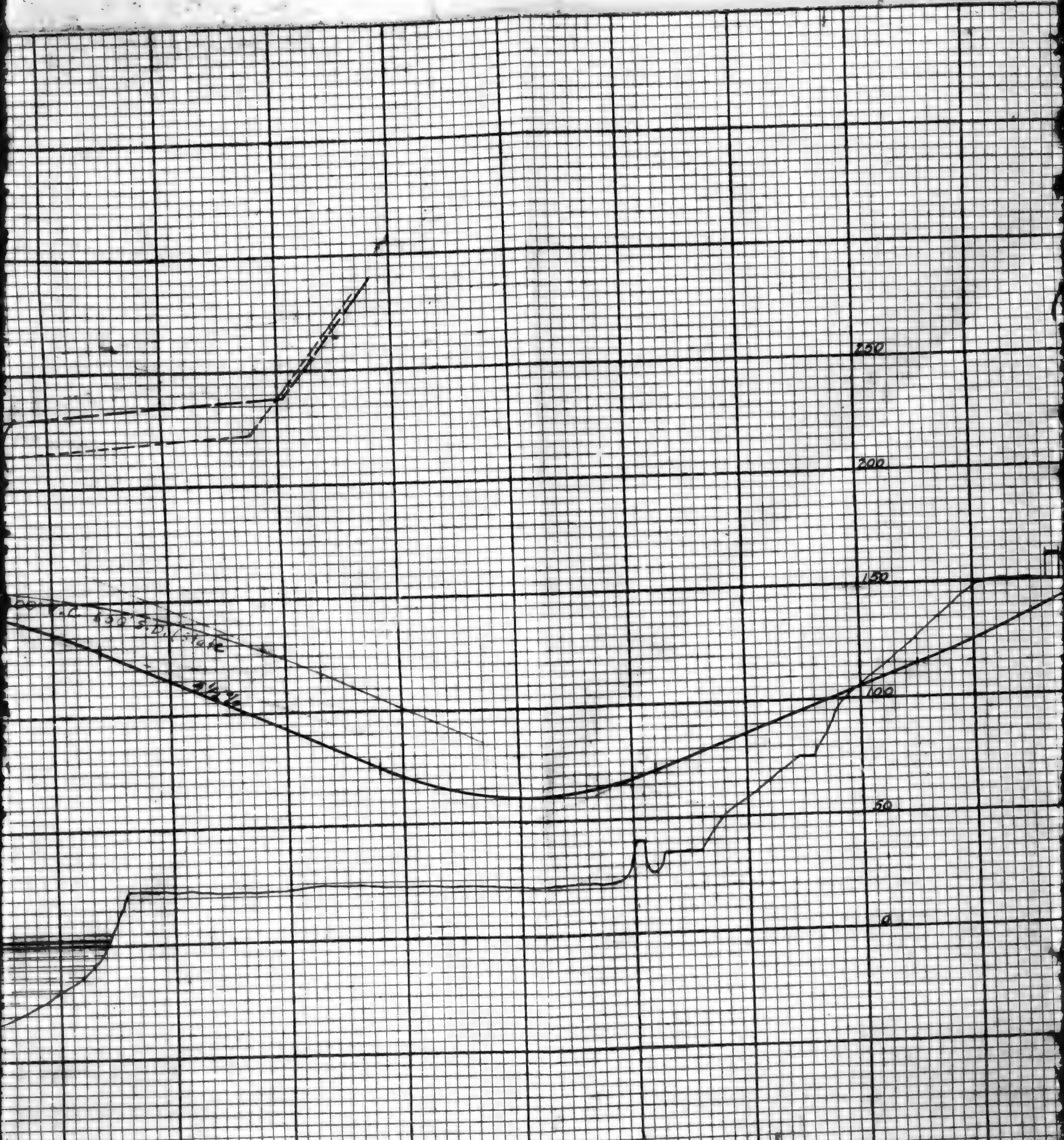
Scale:- Hor. 1" = 500', Vert. 1" = 50'    Mar. 19, 1959

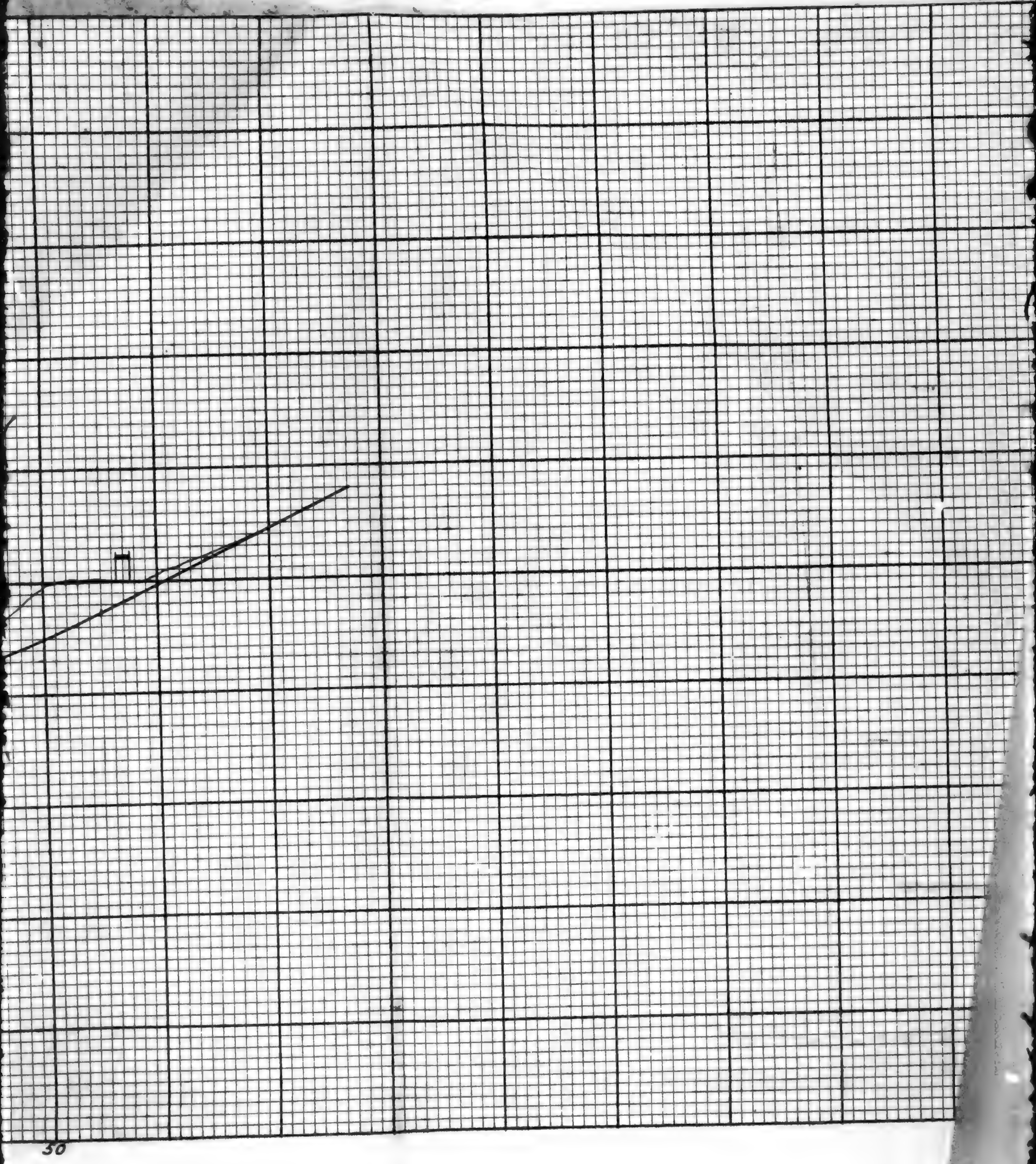
U.S.C.&G.S. Datum

(SHOWING PORTLAND AIRPORT CLEAR ZONES)


South Runway
℄ Approach Zone
Existing Runway
250
200
150
100
50
0
C.A.A. Clear Zone For 1700' Exte
Military Clear Zone For 1700' Exte
Marine Drive
Laurelhurst Freeway Finished 0.0 Grades
200' V.C.
15
70
60
50
40
30


Existing Runway
North Runway
℄ Approach Zone Proposed Runway
℄ Channel
C.A.A. Clear Zone For Proposed Runway 2
Military Clear Zone For Proposed Runway 1
El. 180
Point of Minimum Clearance
2400' V.C.
600' S.D. AA&NO.
3600' V.C.
300'
1 1/2 %
1700' Extension 2
1700' Extension 1
℄ Marine Drive
500' V.C.
2.35%
Point of Maximum Encroachment
Point of Minimum Clearance
140'
140'
15' Clear
Columbia River
2.0 El. M.L.W. U.S.C.&G.S.
30
20
10
0
10


630' S.D. State
250
200
150
100
50
0
10
20
30
40
50



50

PLEASE RETURN TO
FORREST COOPER

IDAHO
MONTANA
OREGON
WASHINGTON

U. S. DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS
REGION EIGHT

408 State Highway Building
Salem, Oregon

When replying, refer to:
08-35.3

April 25, 1960

Mr. W. C. Williams
State Highway Engineer
Salem, Oregon

Re: Project I-205-7(1)0

Dear Sir:

Mr. Cooper's September 30, 1957 letter furnished a fairly definite commitment as to the proposed northern terminus of the Laurelhurst Freeway. This commitment was obtained to permit the State of Washington to reserve the right-of-way through a housing development for the continuation of Interstate Route 205 in that State.

Our Regional office has advised that during a recent conference with State Highway personnel in Olympia, the question was raised as to whether you found it necessary to revise the location commitment as a result of apparent revisions in runway development at the Portland International Airport. You will recall that the State line crossing point was approximately located at the north end of a 2 degree curve, 2,200 feet east of the west line of Section 36, T.2N., R.1E., W.M. Please advise whether any major change must be made in the tentative location of the crossing point and furnish the approximate roadway elevation of the high level bridge, as well as the navigation and airport clearances to be provided.

Edw

Very truly yours,

C. G. Polk
Division Engineer

By: DMEmrich
D. M. Emrich
Acting Division Engineer

RECEIVED
OFFICE OF
STATE HIGHWAY ENGINEER

8405

J

RECEIVED
JUN [illegible]7 1960 2-60 26118

FOR FILING

OREGON STATE HIGHWAY DEPARTMENT

INTER-DEPARTMENT CORRESPONDENCE

Salem, Oregon
June 20, 1960

SUBJECT:

To:

MEMO TO THE FILES:

On June 20, 1960, a call was placed to Forrest Bentley, Senior Highway Engineer for the State of Washington, to determine the status of the estimate of the Columbia River Bridge for the Laurelhurst Freeway, Interstate 205.

Work is being done to complete this estimate. It was thought that it could be transmitted in about two weeks. It was requested that the time be reduced and a transmission made in one week if possible. It was agreed that unit prices justified for use in the State of Washington will prevail and that the split in costs between the two states will be at the state line the same as for the last estimate.

It was stated that in the State of Washington they are hoping to receive the data from the Divisions by August 1st so that the work of assembling the report can begin.

Jack A. Rowland
Jack A. Rowland
Construction Planning Engineer

8905

J

RECEIVED
1960
FOR FILING

June 8, 1960

1687

Mr. C. G. Polk
Division Engineer
Bureau of Public Roads
State Highway Building
Salem, Oregon

Dear Sir:

Your letter of May 10 asked for comments regarding adjustments of design data at the Washington State Line for the purpose of obtaining uniformity for the 104(b)(5) Interstate Study. We herewith resubmit design data for Routes 5, 205, and 82. Included are compromises suggested by the State of Washington with the few exceptions discussed below.

### Interstate Route 5 - Oregon-Washington State Line

We showed a design speed of 40 miles per hour in the 103(d) study. A copy of the profile on the West Bridge is enclosed. The East Bridge was revised to conform. Note a positive 4.73 per cent grade followed by a negative 4.73 per cent grade with a 532-foot vertical curve. The vertical sight distance by AASHO standards is 286 feet. We have again shown 40 miles per hour as the speed though the State of Washington desires to use 60 miles per hour as the design speed.

### Interstate Route 205 - Oregon-Washington State Line

We showed 70 miles per hour as the design speed on the Columbia River Bridge on the Laurelhurst Freeway in the 103(d) study and have shown a three-foot clearance from the edge of the travel lane to the curb in accordance with our state policy on long bridges. Preliminary investigation indicates that the horizontal aligment will not control the design speed but that more likely the design speed will be controlled by the vertical aligment. Particularly is this true since we are involved with river clearances and restricted by clearance under the flight path of the Portland airport. It may be necessary, and we would have no objection, to reducing the vertical aligment to 60 miles per hour for design speed.

Mr. C. G. Polk - 2 June 8, 1960

Interstate Route 82 - Oregon-Washington State Line

In this case, we show a design speed of 50 miles per hour, while the State of Washington shows 55 miles per hour. The instructions on page 32, Item 9 of the 104(b)(5) manual state that the design speed is to be in multiples of 10 miles per hour.

Washington has reported a truck factor of 5 per cent, while the State of Oregon has reported 10 per cent, which is based on a special study made in the year 1959 in which manual counts of the trucks were made at various permanent recording stations when the traffic was estimated to be near thirtieth highest hour volume for the purpose of establishing this factor on the 104(b)(5) Interstate Study. The resulting data is tabulated below:

| Name | Station No. | % Trucks |
|---|---|---|
| North Powder | 1-A | 9 per cent |
| Arlington | 11-H | 6 per cent |
| Pendleton | 30-D | 10 per cent |
| Huntington | 1-[illegible] | 15 per cent |

On the basis of this study, we believe that the trucks shown should be 10 per cent.

Very truly yours,

W. C. Williams
State Highway Engineer

By

Forrest Cooper
Deputy State Highway Engineer

Encl.

cc Mr. W. C. Williams
Mr. Tom Edwards

JAR:ep jw fn

BUREAU OF PUBLIC ROADS
Region 8

## Revised Estimate of Cost to Complete the Interstate System

## Traffic and Design Data, Region 8 State Line Connections

5-25-60

STATE Oregon

Interstate Route I - 205 connection at the Washington State Line.

ADT 1958 13,200

ADT 1975 35,000

DHV 1975 3,850

Directional distribution factor (D), 1975 60

Percent trucks (T), 1975 2

Design speed (V) * 70

* Number of lanes 4

* Median Width 8

* Left Clearance tocurb and surface type 3.5' structure

* Right Clearance to curb and surface type 3' structure

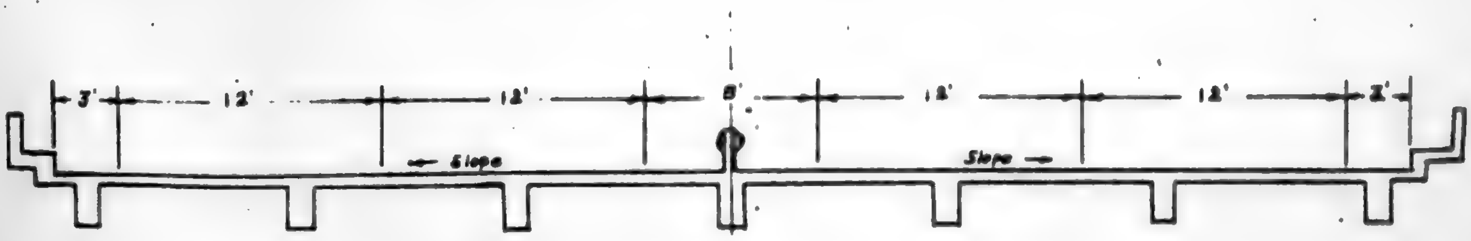
* Pavement type and thickness Structure

Location nearest Interchange: 2.7 miles from State line.

Location nearest rest area: none miles from State line.

Location nearest control area (Oregon) Portland

* Sketch of typical cross-section would be preferred.



1-28-60 *It will not be objectionable if this is reduced to 60 mph for the purpose of providing vertical clearance for the flight pattern for the Portland Airport.

BUREAU OF PUBLIC ROADS
Region 8

## Revised Estimate of Cost to Complete the Interstate System

Traffic and Design Data, Region 8 State Line Connections

5-25-60

STATE Oregon

Interstate Route I-82 connection at the Washington State Line.

ADT 1958 1,400

ADT 1975 4,000

DHV 1975 500

Directional distribution factor (D), 1975 60

Percent trucks, (T), 1975 10

Design speed (V) 50

* Number of lanes 2

* Median Width - -

* Clearance to curb and surface type 1.5' structure

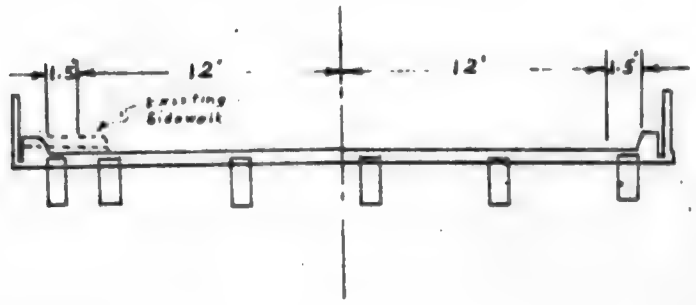
* Pavement type and thickness structure

Location nearest interchange 1.0 miles from State line.

Location nearest rest area: none miles from State line.

Location nearest control area (Oregon) Pendleton

* Sketch of typical cross-section would be preferred.



1-28-60

PLEASE RETURN TO
FORREST COOPER

IDAHO
MONTANA
OREGON
WASHINGTON

U. S. DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS
REGION EIGHT

408 State Highway Building
Salem, Oregon

When replying, refer to:
08-35.3

May 10, 1960

Mr. W. C. Williams
State Highway Engineer
Salem, Oregon

Dear Sir:

Mr. Cooper's March 4, 1960 letter furnished information for correlating traffic and design data at the Interstate System State line connections in Oregon for the revised 1961 estimate.

We now attach a copy of the State of Washington's April 7 letter with similar data sheets for your three connections to that State. Mr. Bugge comments on possible compromises. We would appreciate receiving your comments regarding adjustments of the data as proposed to obtain uniformity.

We consider your 40MPH design speed for the Portland-Vancouver toll bridge to be correct. In regards to establishing the location of Interstate Route 205 (Laurelhurst Freeway) we have forwarded the map furnished with Mr. Cooper's May 4, 1960 letter which gave your location of the northern terminus in Oregon. Const Proj [illegible] - Portland

Final data for the Idaho and California connections have not been received as of this date.

Very truly yours,

CGPolk

C. G. Polk
Division Engineer

Encls.

RECEIVED
MAY 16 1960
OFFICE OF
STATE HIGHWAY ENGINEER

STATE OF WASHINGTON
ALBERT D. ROSELLINI, GOVERNOR

WASHINGTON
STATE HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS
W. A. BUGGE, DIRECTOR
TRANSPORTATION BUILDING
OLYMPIA

COMMISSIONERS
ST J. KETCHAM, CHAIRMAN
ATTLE
MORGAN
ONGVIEW
STONE
POKANE
MOISIO
ACOMA
ST A. COWELL
REKA
NZ GOETZ, SECRETARY
LYMPIA

DISTRICT OFFICES
NO. 1 SEATTLE 8 6431 CORSON AVE
NO. 2 WENATCHEE P. O. BOX 98
NO. 3 OLYMPIA P. O. BOX 327
NO. 4 VANCOUVER 4200 MAIN STREET
NO. 5 YAKIMA P. O. BOX 52
NO. 6 SPOKANE 21 N. 2920 MAYFAIR ST.
NO. 7 SEATTLE 4 400 SPOKANE ST.

April 7, 1960

COPY

Mr. Roe P. Rodgers
Division Engineer
Bureau of Public Roads
Olympia, Washington

Revised Interstate Roads Study
Section 108(b)5

Dear Sir:

On February 9 the Department received a letter from your office with attached forms concerning traffic and design data on state line connections which you requested be completed and returned to your office. On March 17 the Department received a letter from your office discussing state line connections with attached forms showing traffic and design data at the Oregon line and also at the Idaho line.

The following comments are offered to you in explanation of the differences observed by the Department among the various data being reported by Washington and/or Oregon and Idaho, as the case may be.

(1) FAI 5 - Oregon State Line
We agree closely on the 1958 ADT (22,000 for Washington, 21,200 for Oregon). However, the 1975 volumes are somewhat different (5[illegible],300 for Washington, 53,000 for Oregon). It is difficult to substantiate one figure or the other inasmuch as the volumes will be affected to a large extent by the interchange provisions in Portland. A comparison between the two might be in order.

Washington used a K factor of 11% while Oregon used 10%. Both Oregon and Washington agreed on 11% for the 108(d) study based upon the results of Oregon's counter on the Interstate bridge. It is suggested that we again compromise on 11%.

The D factor was obtained from the data from Oregon's traffic counter on the bridge, and it is suggested that Oregon change its figure from 60 to 55 to conform. This will agree with the previous 108(d) study.

The T factor of 5% as reported by Washington is also in agreement with the previous 108(d) study; however, Oregon's figure of 6% does not agree.

The design speed reported by Washington is 60 mph, which is in agreement with the previous 108(d) study; however, it is noted that Oregon has reported a design speed of 40 mph, which does not agree.

The other design features seem to be in substantial agreement and deserve no further comment.

(2) FAI 205, Oregon State Line
Washington and Oregon are in very close agreement for all values. We should be able to compromise on the DHV percentage of 11 rather than the 12 used by Washington or the 10 used by Oregon. The ADT's for 1958 and 1975 are sufficiently close that either one or the other could be made to agree without any real dispute.

The design speed of 60 mph, as reported by Washington, agrees with the previous 108(d) study; however, the design speed of 70 mph, as reported by Oregon, does not agree.

As nearly as can be determined by this office, the basic difference in the typical section for the structure amounts to 3 feet of shy from the curb, as reported by Oregon, as opposed to 2 feet of shy as reported by Washington. The roadway section F, as reported by Washington, is in agreement with the previous 108(d) study.

(3) FAI 82 - Oregon State Line
Washington and Oregon agree on the 1958 ADT but differ on the 1975 ADT (4,170 for Washington, 3,650 for Oregon). We also differ on the DHV, Washington using 15 1/2%, Oregon 12%. In the preparation of the 108(d) study, Washington recommended 15 1/2%, Oregon recommended 10%, and a compromise was effected, using 12 1/2%. It appears at this time that the compromise will again be necessary.

Washington has reported a T factor of 5%, which is in agreement with the previous 108(d) study, while Oregon has reported a T factor of 10%. It would appear that a compromise would be in order; however, Washington considers that 5% is the maximum which should be used.

The design speed and other design features appear to be in agreement and deserve no further comment.

(4) FAI 90 - Idaho State Line
Washington reported travel for PSH No. 2 while Idaho reported travel for the combination of PSH No. 2 and SSH No. 2-H, which junctions just inside the Idaho line. Our ADT figures would be in conformance had both states considered the same route in Washington. Idaho has a permanent recorder near Coeur d'Alene from which they presumably obtained their K, D and T factors.

Washington used a K factor of 13% and Idaho used 14%. Idaho used a D factor of 52% and Washington used 70%. We do not have the data from Idaho's permanent recorder so it is not possible to evaluate which figures are better substantiated by actual traffic counts. It may be necessary for Idaho to furnish their permanent recorder data before agreement can be reached on state line figures. In the preparation of the 108(d) estimate, Washington and Idaho compromised on 15% for the K factor and 75% for D. It is difficult to see how data which might be available to Idaho now, which was not available to them from their permanent recorder before, could substantiate such a radical change.

The position of the location, design speed, number of lanes, etc., has been discussed with Idaho during the location stage, and we do not believe there is as much a problem as the section reported by Idaho would indicate. The roadway section reported by Washington is the same as that contained in the original 108(d) study.

Very truly yours,

W. A. BUGGE
Director of Highways

By: R. E. FUTRELL
Location Engineer

WAB:in
REF

cc; Bugge
Glaze

[illegible]

Traffic and design data [illegible] connections

State [illegible]

Interstate Route [illegible] connecting with the Oregon State Line.

ADT 19[illegible] [illegible]

ADT 1975 50,[illegible]00

DHV 1975 6,4[illegible]0

Directional distribution factor (D), 1975 55

Percent trucks (T), 1975 5 ✓

Design speed, [illegible] 60 ✓

* Number of lanes 6 ✓

* Median width [illegible] Between Inside Curbs on Separate Bridges

* Left shoulder width and surface type [illegible] Stat. left & [illegible] on Southbound Bridge

* Right shoulder width and surface type [illegible] left & [illegible] on Northbound Bridge

* Junction type and [illegible] Bridge [illegible]

[illegible] miles from State line.

[illegible] nearest [illegible] miles from State line.

* [illegible] typical [illegible] preferred.

[illegible] Roadway Section [illegible]

[illegible]

[illegible]

[illegible] 1975 Conditions

State Washington

Interstate route 205 crossing the Oregon State line.

[illegible] 14,200

ADT 1975 35,000

DHV 1975 4,[illegible]

Directional distribution factor (D), 1975 60 ✓ Urban Rolling

Percent trucks, (T), 1975 2 ✓

Design speed, (V) 60

* Number of lanes 4 ✓

* Median width ~~[illegible]~~ 8' ✓

* Left shoulder width and surface type 3' - Conc. Bridge Deck

* Right shoulder width and surface type 4' - Conc. Bridge Deck

* Pavement type and thickness Concrete Bridge Slab

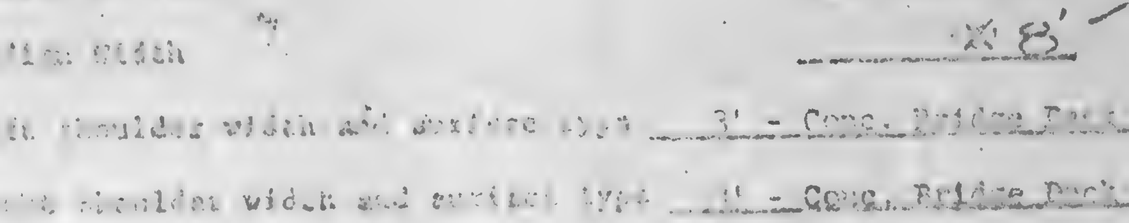
Location nearest Interchange: 0.6 miles from State line.

Location nearest rest area: [illegible] miles from State line.
on FAI 205

* Sketch of typical cross-section would be preferred.

Deficiencies: Section f of 106(d) Report.

Location: New Interstate bridge proposed near the extension of NE 33rd Drive on the Oregon side to the vicinity of Blanford Drive in NE-1/4, Sec. 34, T. 2 N., R. 1 E.W.M. on the Washington side. Detailed location not determined.



[illegible]

[illegible]

[illegible] Connections

[illegible] Washington

[illegible] Route 82 [illegible] the Oregon State line

ADT [illegible] 1400

ADT 1975 4170

DHV 1975 650

Directional distribution factor (D), 1975 60 Rural Rolling

Percent trucks, (T), 1975 5

Design speed, (V) 55 mph

Number of lanes 2

Median width —

Right shoulder width and surface type 1.5' Clearance to curb of bridge deck

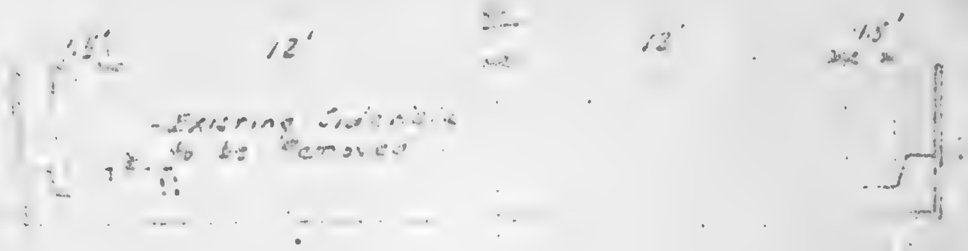
Left shoulder width and surface type 1.5' Clearance to curb of bridge deck

Pavement type and thickness [illegible] deck

Location nearest Interchange: 113 miles from State line.

Location nearest rest area: 30 miles from State line.

Sketch of typical cross section would be preferred.



[illegible]

8905

P 8

STATE OF WASHINGTON
ALBERT D. ROSELLINI, GOVERNOR

WASHINGTON
STATE HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS
W. A. BUGGE, DIRECTOR
TRANSPORTATION BUILDING
OLYMPIA

ERNEST J. K[illegible], CHAIRMAN
SEATTLE
O. E. STONE
SPOKANE
R. A. MOISIO
TACOMA
ERNEST A. COWELL
EUREKA
H. E. MORGAN
LONGVIEW
LORENZ GOETZ, SECRETARY
OLYMPIA

DISTRICT OFFICES
NO. 1 SEATTLE 5
6431 CORSON A
NO. 2 WENATCHEE
P. O. BOX [illegible]
NO. 3 OLYMPIA
P. O. BOX [illegible]
NO. 4 VANCOUVER
4200 MAIN STREE
NO. 5 YAKIMA
P. O. BOX [illegible]
NO. 6 SPOKANE 21
N. 2920 MAYFAIR ST
NO. 7 SEATTLE 4
400 SPOKANE ST.

RECEIVED
MAY 17 1960
FOR FILING

May 4, 1960

COPY

Mr. Roe P. Rodgers
Division Engineer
Bureau of Public Roads
Olympia, Washington

Revised Interstate Estimate
Section 104(b)5 Study

Dear Sir:

Your letter of April 21, 1960, forwarded a letter from Mr. Williams of the Oregon State Highway Department dated April 1, 1960, on the subject of the revised estimate to be prepared for the Interstate bridge on FAI 205.

Inasmuch as the 108(d) estimate for this structure was prepared by Washington, the same procedure appears satisfactory for preparing the revised estimate. You are advised that the revised estimate will be prepared by our Bridge Division, and cost data for the Oregon portion will be forwarded to your office for review and transmittal to Oregon.

Very truly yours,

W. A. BUGGE
Director of Highways

By: R. H. FURRELL
Location Engineer

WAB:gem
FGB

cc: Bugge
Stevens
Mason

Edwards
Merchant

8905

8p

RECEIVED
JUN 24 1959
FOR FILING

June 23, 1959

Mr. John J. Winn, Jr.
General Manager
The Port of Portland
Swan Island, P. O. Box 4099
Portland 8, Oregon

Dear Mr. Winn:

This will acknowledge receipt of your recent letters making a memorandum of the conference we had in Portland on June 15, concerning the flightway clearances from the Portland International Airport. We will keep you advised of any changes in our plans as they occur.

Very truly yours,

W. C. Williams
State Highway Engineer

By

G. S. Paxson
Assistant State Highway Engineer

GSP:gm

cc Mr. W. C. Williams
Mr. Forrest Cooper

RECEIVED
JUN 23 1959
FOR FILING

Const
R/W
Laurelhurst Freeway

P

Salem, Oregon
June 22, 1959

Port of Portland conference

Mr. Forrest Cooper

Herewith a memorandum from the Port of Portland covering a conference had with them concerning flight clearance conflicts between the proposed Laurelhurst Freeway Bridge over the Columbia River and the possible extension of runways at the Portland Airport.

G. S. Paxson

GSP:gm
Attach.
cc Mr. W. C. Williams
Mr. Tom Edwards

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DENNIS J. LINDSAY
President
LEE E. CALDWELL
Vice-President
THOMAS M. CAMPBELL
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Chief Engineer
R. A. NEUMEISTER
Marine Supt.
D. M. CHARLESON, JR.
Industrial Development
C. H. COVER
Dir. of Information
ERNEST HAYCOX, JR.

THE PORT OF PORTLAND

Swan Island, P. O. Box 4099, Portland 8, Oregon

June 19, 1959

Mr. W. C. Williams
State Highway Engineer
State Highway Department
Salem, Oregon

Attention: Mr. G. S. Paxson
Assistant Highway Engineer

Gentlemen:

Reference is made to the conference held in the Port office building with Messrs. Paxson and Merchant of the State Highway Department and Messrs. Winn and Neumeister of The Port of Portland in attendance, during which the possible conflict between the State Highway Department's proposed 33rd Street Columbia River bridge and The Port of Portland runway extensions at Portland International Airport were discussed.

At said meeting Mr. Paxson submitted to the Port of Portland the following drawings concerning this situation:

1. Profile, proposed approach clear zones, Portland Airport, dated March 27, 1959.

2. Proposed Laurelhurst Freeway interstate bridge showing Portland Airport clear zones, dated March 19, 1959.

3. Profile, proposed interstate bridge, Laurelhurst Freeway, dated March 19, 1959.

The elevations used on all of the above drawings were based on U. S. Coast and Geodetic Survey datum. During the interim The Port of Portland has checked its drawings concerning this situation and confirmed the fact that our drawings are also based on the same U. S. Coast and Geodetic Survey datum, specifically the Port of Portland Master Plan of the Portland International Airport, dated October 11, 1959, with the latest revision noted and dated as March 31, 1959.

The Port of Portland has reviewed its extension plans and the proposed Columbia River bridge location drawings and has concluded that the present standards of the Federal Aviation Agency are such that the anticipated 1700-foot runway extension to the west of the south parallel runway would clear the proposed 33rd Street-Columbia River Bridge by a minimum of approximately 15 feet above the bridge roadway. From present information available, indications are that there will be approximately an additional two feet of clearance, however, the exact location of the bridge was only scaled, and therefore the exact clearance could not be defined to that degree.

It should be pointed out, however, that a conflict would exist with the military liaison criteria if this runway is extended as planned. Due to the flaring characteristics of the military clear zone, a westerly shift of the bridge alignment would not resolve this problem; and apparently a northward shift of the channel clearance points would not produce enough additional clearance to eliminate the conflict. Therefore, in view of the above, it appears that if The Port of Portland's south parallel runway is extended to the west, an unavoidable conflict would be generated between the U.S. Air Force military clear zone and the bridge.

There remains an additional hazard to this situation: should the Federal Aviation Agency flatten the 50 to 1 approach zone for jet aircraft, a conflict would come into being between the civilian clear zone and said bridge. However, at the present time, as stated above, a conflict does not exist in this regard.

The Port of Portland is most appreciative of your continued cooperation in this matter, and when The Port of Portland's plans for a runway extension become firm, we will notify your office promptly. Further, it is suggested that if there are any changes in either your plans or ours concerning the future in this area or the criteria upon which the present determination has been made, that we notify each other accordingly.

Very truly yours,

THE PORT OF PORTLAND

John J. Winn Jr

JOHN J. WINN, JR.
General Manager

RN:bb

RECEIVED
JUN 23 1959
STATE HIGH

THE PORT OF PORTLAND

June 16, 1959

SUBJECT: Highway Department Drawings, P.I.A. South Parallel Runway---33rd Street Bridge Conflict.

The drawings left in your office on Monday, June 15, by Mr. Glenn Paxson, Assistant State Highway Engineer, have been compared with Port drawings with regard to the subject conflict. It has been determined that the revised Highway Department drawings and the Port drawings used in this comparison are all based on U. S. Coast and Geodedic Survey datum.

The plans referred to above are The Port of Portland Master Plan of the Portland International Airport dated October 11, 1957, with the latest revision of March 31, 1959, which plan states all elevations based on U.S.C. and G.S. datum. The Highway Department drawings referred to are:

(1) Profile,proposed approach clear zones Portland airport dated March 27, 1959.
(2) Proposed Laurelhurst Freeway interstate bridge showing Portland airport clear zones under date of March 19, 1959.
(3) Profile, proposed interstate bridge, Laurelhurst Freeway under date of March 19, 1959.

As aforementioned, all these plans herein listed are based on U.S.C. and G.S. datum.

U.S.C. and G.S. datum has been used through the years for the Master Plan of the Portland International Airport which puts elevations of said plans on the same datum used by C.A.A. and now F.A.A. for other airports.

Therefore, the conclusions presented by Mr. Paxson at last Monday's meeting are correct that a 1,700-foot extension of the south parallel runway to the west will clear the 15-foot clear zone above the bridge roadway by a minimum of two feet. Further, Mr. Paxson was correct that the military clear zone for said extension would be in conflict with the bridge for a total height of 23 feet. However, indications are that the military clear zone criteria used by the Highway Department is based on the anticipated criteria for major bases, and is somewhat in excess of the present criteria. The possibility remains that Portland International Airport will not be classified as a major base and, therefore, this excess clear zone area may not be required. In any event, a conflict exists with the military clear zone which is now approximately 15 feet.

All of the discussion above must be classified as approximations because of the fact that the bridge location had to be transferred by scale from the Highway Department drawings to the Port drawings. Any error would be not over one foot vertically.

Investigation has been made which conclusively shows that a westerly movement of this bridge would not improve the conflict with the military zone due to the flaring of same, and that a northerly shift of the high point of the bridge would not remove the conflict. At present the only feasible means of removing this conflict would be to move the touch-down point for military aircraft eastward from the westerly end of the extended southern parallel runway.

The other continuing hazard to airport operations in this situation involves the possibility of F.A.A. flattening the approach zone. If this comes about and the bridge is built, the westerly part of this runway would become useless for landings from the west but still available for take offs to the east.

This information should satisfy the immediate situation with the Highway Department, which you told Mr. Paxson you would convey to him at the Governor's meeting June 18. The other point concerned the meeting with tug boat operators and pilots concerning the Marquam bridge horizontal clearances, and said meeting has not yet been set up. The study and recommendation as to the runway extension for the south parallel runway is in its final stages and it is hoped that this will be in your hands by the end of this week.

RN:nw

TO: John J. Winn, Jr.

8105

file H 8

RECEIVED
SEP 3 - 1958
FOR FILING

THE PORT OF PORTLAND

Swan Island, P. O. Box 4099, Portland 8, Oregon

*Commissioners*
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*Vice-President*
THOMAS M. CAMPBELL
*Secretary*
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*Treasurer*
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*General Manager*
JOHN J. WINN, JR.
*Asst. Gen. Mgr. - Aviation*
R. A. MILLS
*Comptroller*
E. W. BAUER
*Adm. Engineer*
R. A. NEUMEISTER
*Marine Supt.*
D. M. CHARLESON, JR.
*Dir. of Information*
ERNEST HAYCOX, JR.

August 21, 1958

REFERRED TO Cooper
By State Highway Engineer

Mr. W. C. Williams
State Highway Engineer
State Highway Department
Salem, Oregon

Dear Mr. Williams:

Subject: Portland International Airport Master Plan

Attached hereto is a print of the revised Portland International Airport master plan. Our intent in providing you with this print is to furnish you with a map which shows the airport as it exists at the beginning of operations in the new terminal building.

Prints which you may or may not have in your possession are obsolete and contain information which is no longer accurate.

In an attempt to remove from circulation any and all superseded plans, we respectfully request that you either destroy or prominently mark as superseded all prints of the previous Master Plans now in your possession.

Thank you for your cooperation.

1 copy [illegible]
sent to [illegible]

Very truly yours,

THE PORT OF PORTLAND

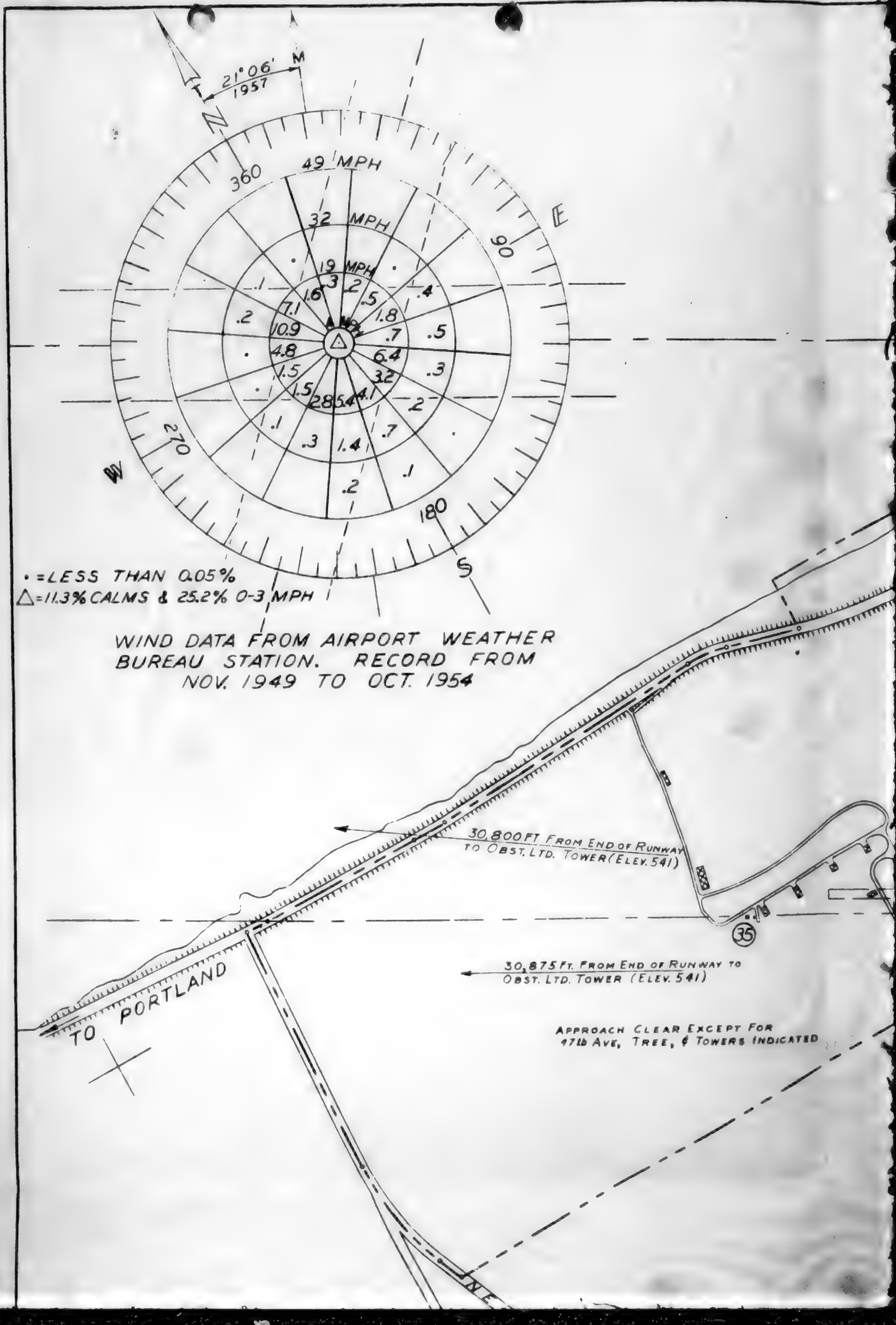
JOHN J. WINN, JR.
General Manager

NOTED
FORREST COOPER

R[illegible]VED
AUG 2 9 1958
STA[illegible]MMISSION

ERA:jw

1959 OREGON CENTENNIAL EXPOSITION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TO PORTLAND
NE

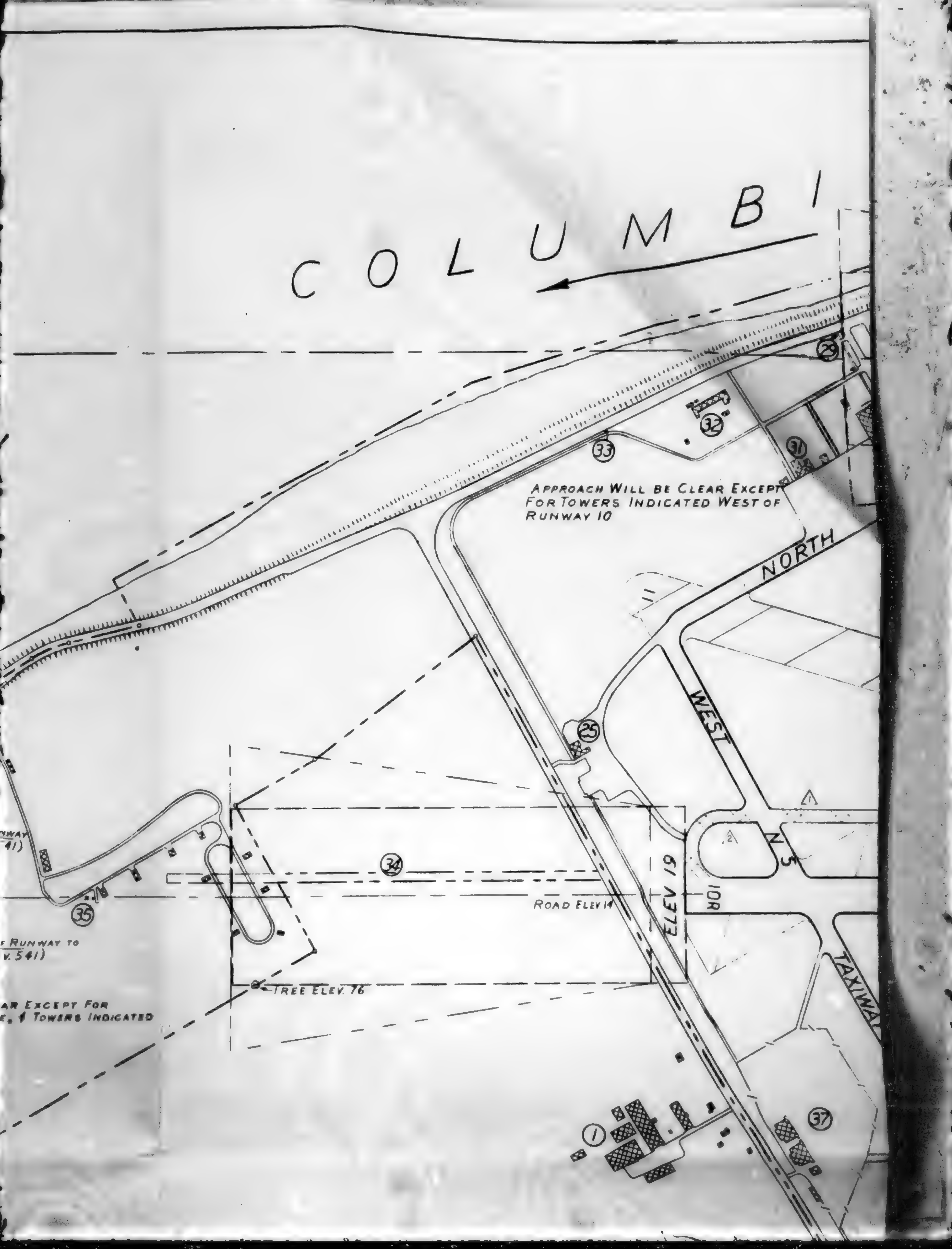
• = LESS THAN 0.05%
△ = 11.3% CALMS & 25.2% 0-3 MPH

WIND DATA FROM AIRPORT WEATHER BUREAU STATION. RECORD FROM NOV. 1949 TO OCT. 1954

30,800 FT FROM END OF RUNWAY TO OBST. LTD. TOWER (ELEV. 541)

30,875 FT. FROM END OF RUNWAY TO OBST. LTD. TOWER (ELEV. 541)

APPROACH CLEAR EXCEPT FOR 47th AVE, TREE, & TOWERS INDICATED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APPROACH WILL BE CLEAR EXCEPT FOR TOWERS INDICATED WEST OF RUNWAY 10
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31
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NORTH
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41)
34
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10R
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V. 541)
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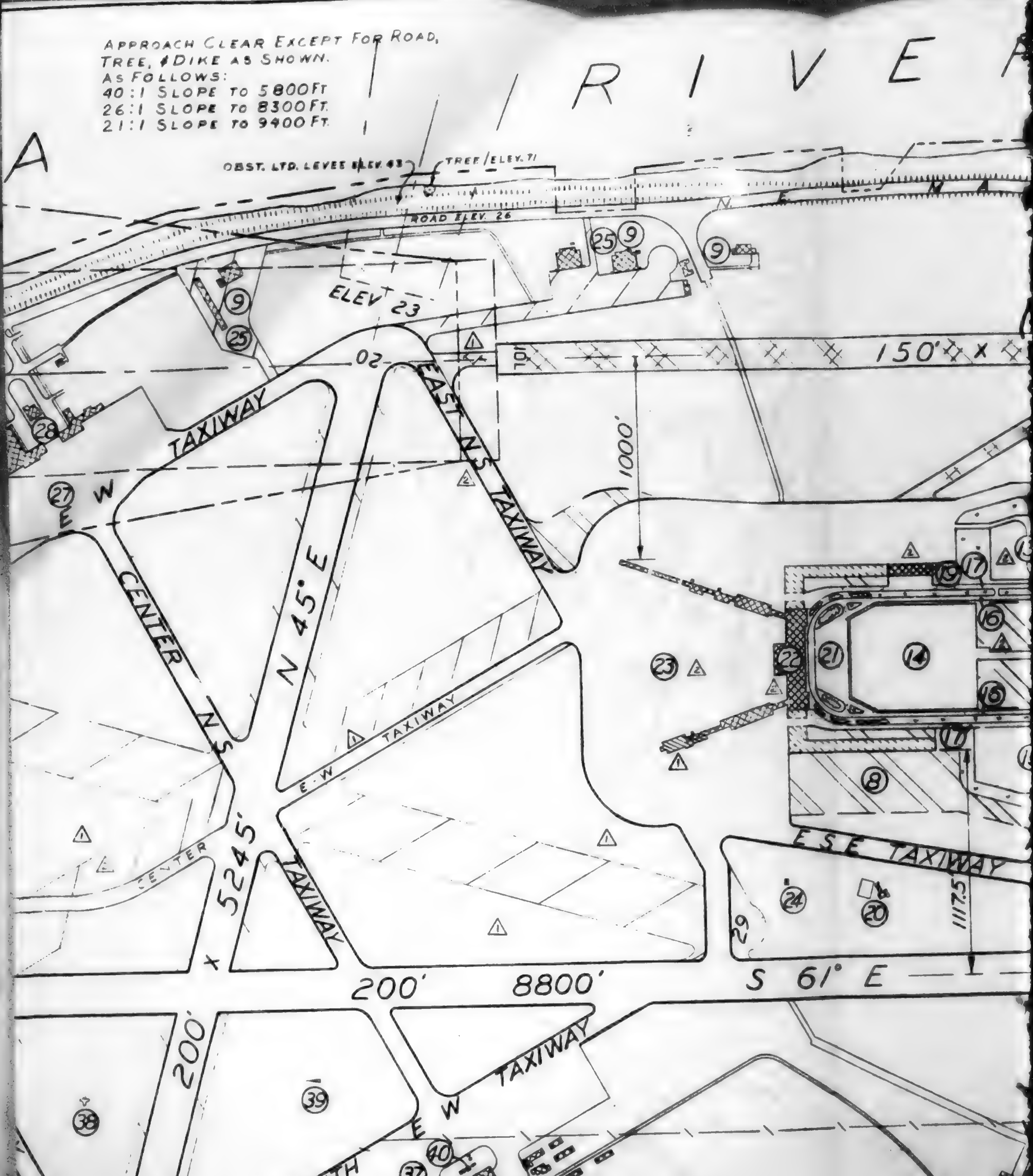
37


APPROACH CLEAR EXCEPT FOR ROAD, TREE, & DIKE AS SHOWN.
AS FOLLOWS:
40:1 SLOPE TO 5800 FT
26:1 SLOPE TO 8300 FT.
21:1 SLOPE TO 9400 FT.

A
RIVER
OBST. LTD. LEVEE ELEV. 43
TREE / ELEV. 71
ROAD ELEV. 26
ELEV 23
9
25
28
27
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CENTER N S
N 45° E
EAST N S TAXIWAY
E W TAXIWAY
1000'
150' x
23
22
21
14
16
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ESE TAXIWAY
24
20
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1175
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200' 8800' S 61° E
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38
39
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2
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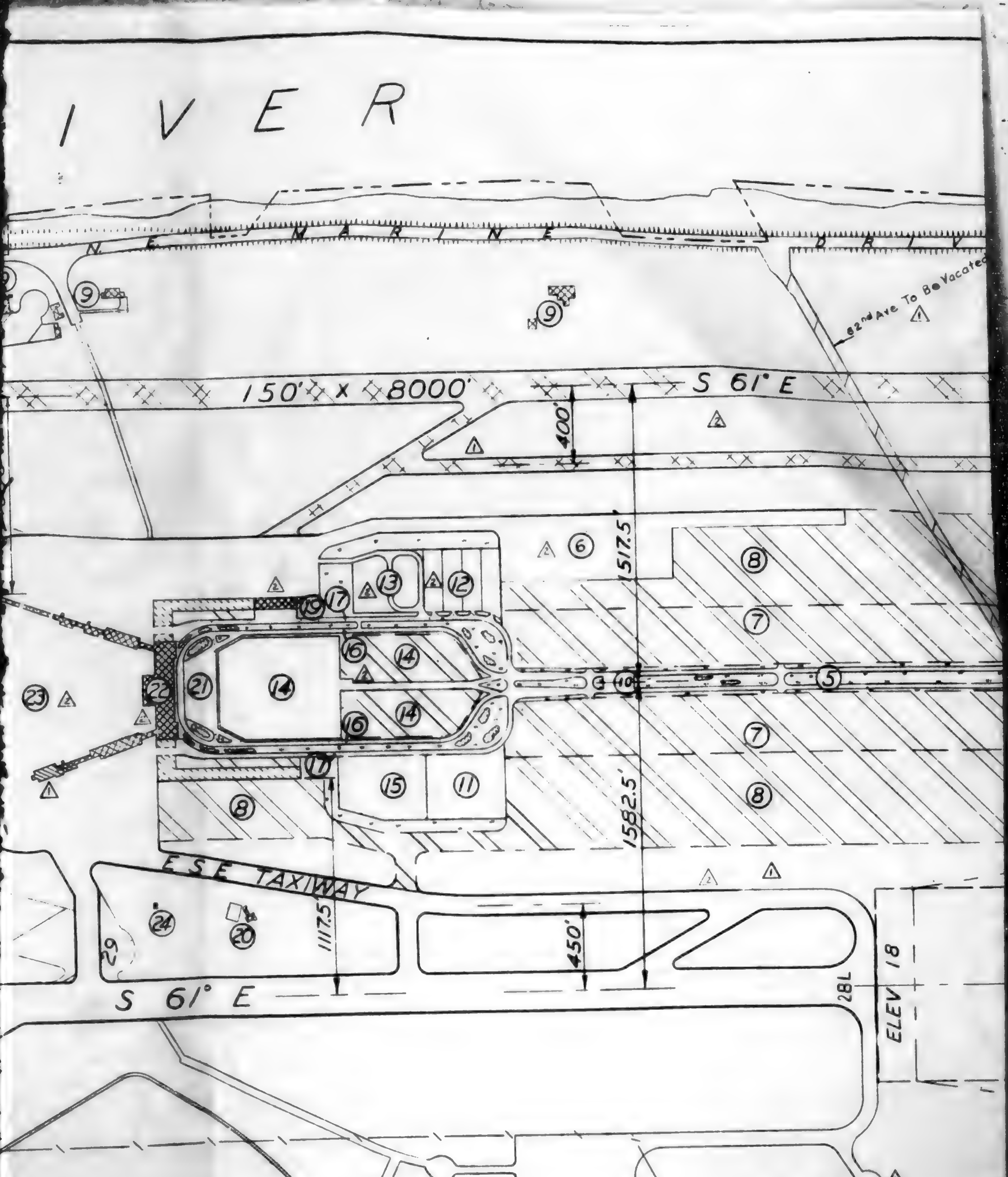
I V E R
N. M A R I N E D R I V
82nd Ave To Be Vacated
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S 61° E
400'
1517.5'
1582.5'
1117.5'
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E S E TAXIWAY
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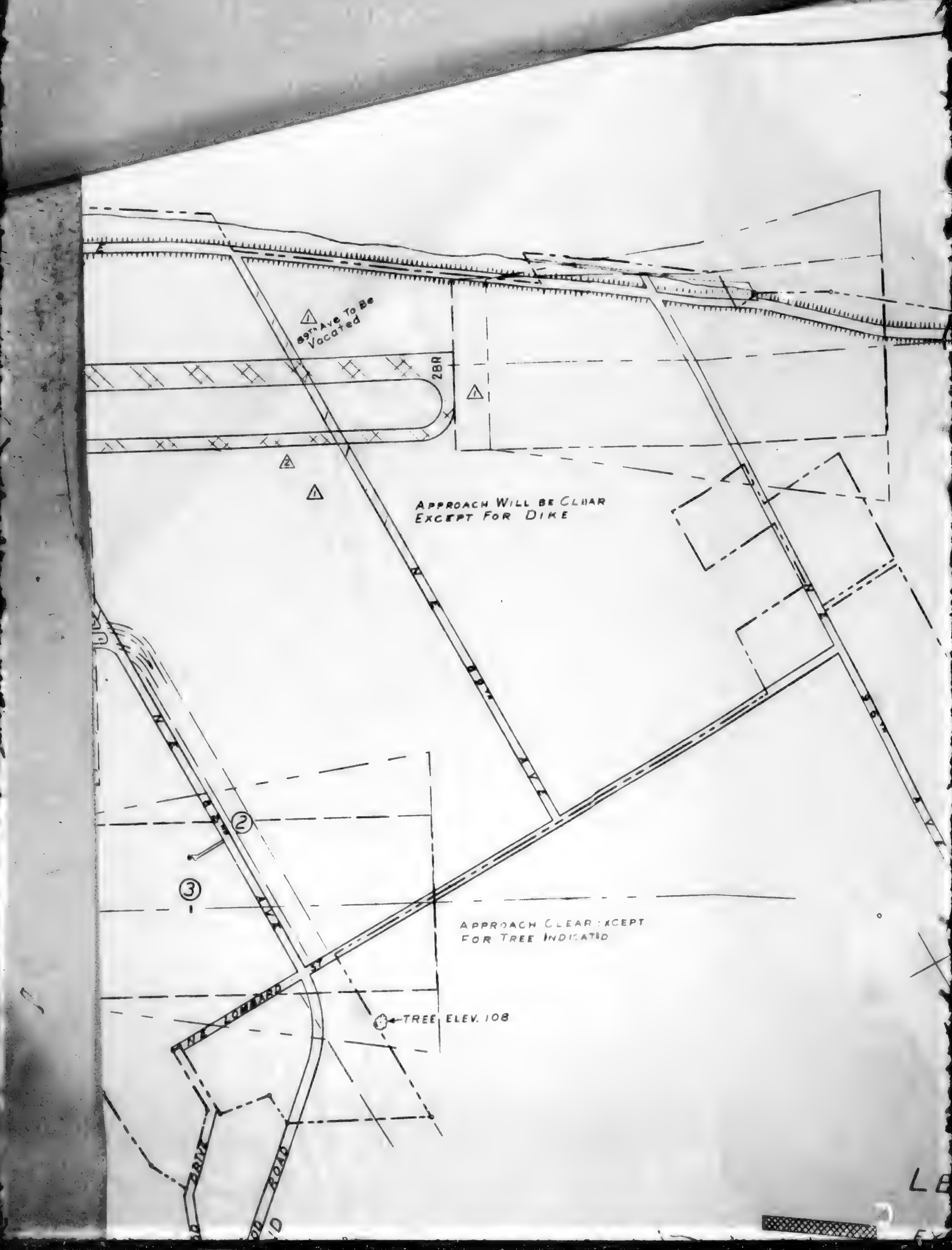
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89th Ave To Be Vacated
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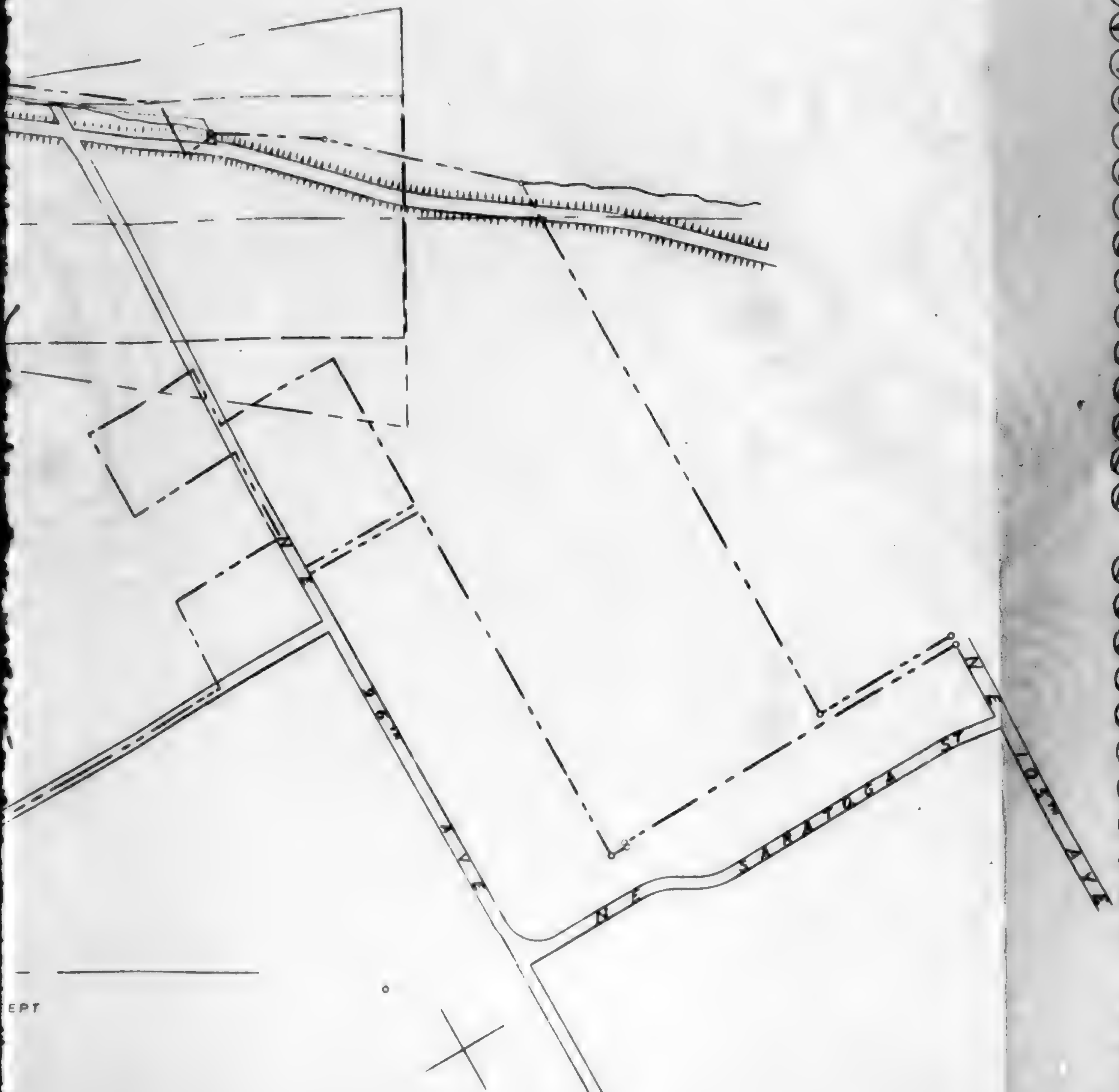
N E 82ND AVE
N E SARATOGA ST
N E 102ND AVE
NE PORTLAND BLVD
EPT

① FARM BU
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⑧ APRON
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㉓ TERMINA
㉔ PRECISION
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LEGEND

EXISTING BUILDINGS

SARATOGA ST
N E 10TH AVE

① FARM BUILDINGS
② PROPOSED ACCESS ROAD R/W
③ LOCALIZER UNIT
④
⑤ ENTRANCE ROAD
⑥ COMMERCIAL HANGAR APRON & TAXIWAY
⑦ HANGAR AREA
⑧ APRON AREA
⑨ BUILDINGS TO BE REMOVED
⑩ AUTO SERVICE STATION
⑪ FREE PARKING
⑫ AUTO RENTAL PARKING LOTS
⑬ FUEL STORAGE AREA
⑭ PAID PARKING
⑮ EMPLOYEE PARKING
⑯ MAIN ENTRANCE ROAD
⑰ TRUCK ROADS

⑲ CARGO BUILDING
⑳ SEWAGE DISPOSAL PLANT
㉑ METERED PARKING
㉒ NEW TERMINAL BUILDING & CONTROL TOWER
㉓ TERMINAL APRON
㉔ PRECISION APPROACH RADAR BUILDING
㉕ HANGAR BUILDINGS
㉖
㉗ NORTH APRON
㉘ TERMINAL AREA (TO BE CLOSED IN 1958)
㉙ AIRPORT BEACON

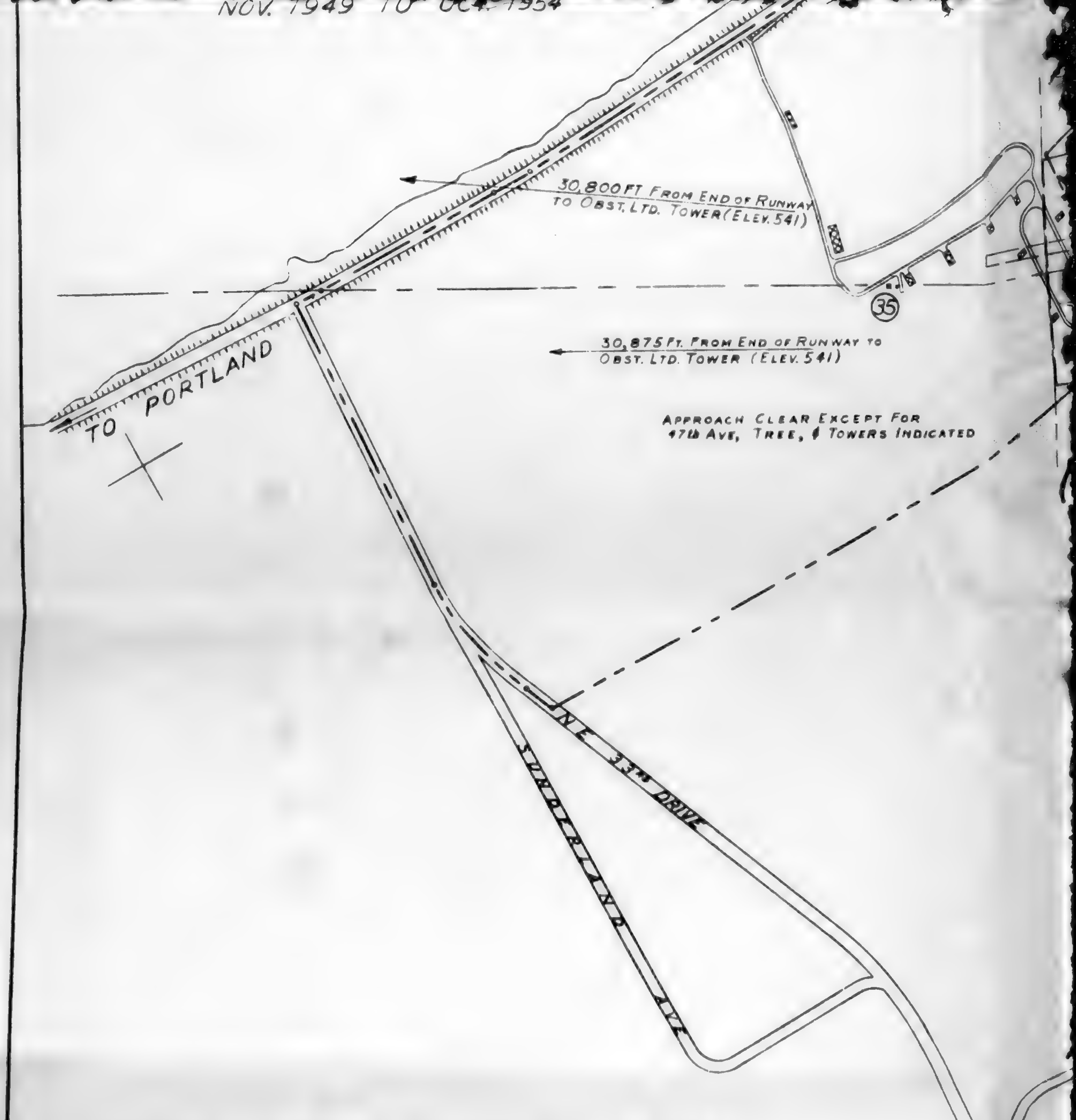
㉛ ADMINISTRATION BUILDING
㉜ AIRPORT MAINTENANCE AREA
㉝ CEILOMETER
㉞ LIGHT LANE
㉟ MIDDLE MARKER

㊲ AIR FORCE FACILITIES
㊳ GLIDE PATH UNIT
㊴ TETRAHEDRON
㊵ EXISTING CONTROL TOWER
㊶ AIRPORT SURVEILLANCE RADAR

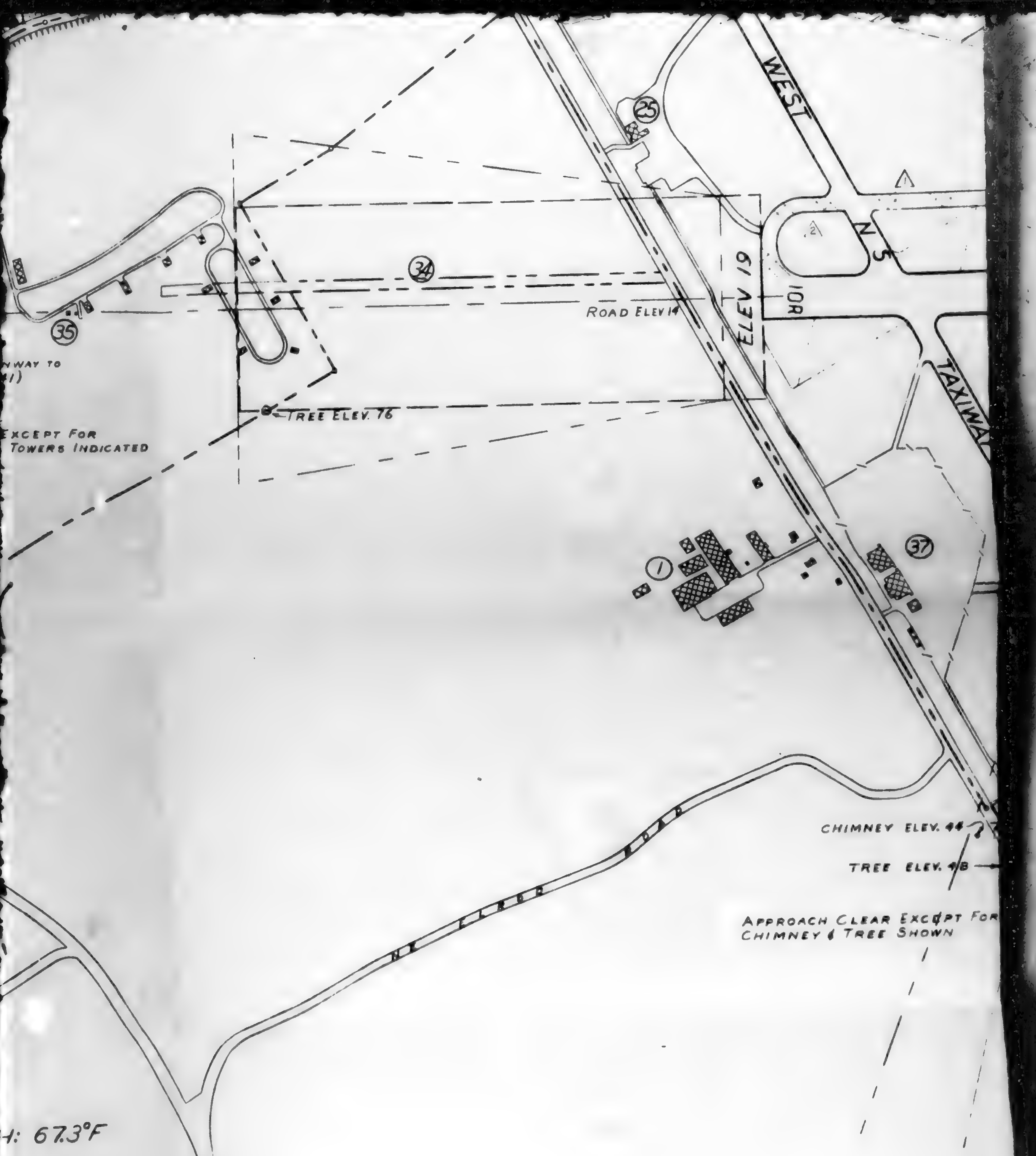
FACILITIES

NOTED
FORREST COOPER

NOV. 1949 TO OCT. 1954


30,800 FT FROM END OF RUNWAY TO OBST. LTD. TOWER (ELEV. 541)
35
30,875 FT. FROM END OF RUNWAY TO OBST. LTD. TOWER (ELEV. 541)
TO PORTLAND
APPROACH CLEAR EXCEPT FOR 47th AVE, TREE, & TOWERS INDICATED
NE 33rd DRIVE
SUNDERLAND AVE

OFFICIAL AIRPORT ELEVATION: 23 FEET
MEAN TEMPERATURE OF HOTTEST MONTH: 67.3°F
EFFECTIVE GRADIENT: 0.015 %
CORRECTION FACTOR: 1.05
CATEGORY OF AIRPORT: INTERCONTINENTAL EXPRESS
TYPE OF RUNWAY LIGHTS: HIGH INTENSITY ON 10-28
MED. INTENSITY ON 2-20
FLUSH TYPE ON 11-29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TREE ELEV. 48
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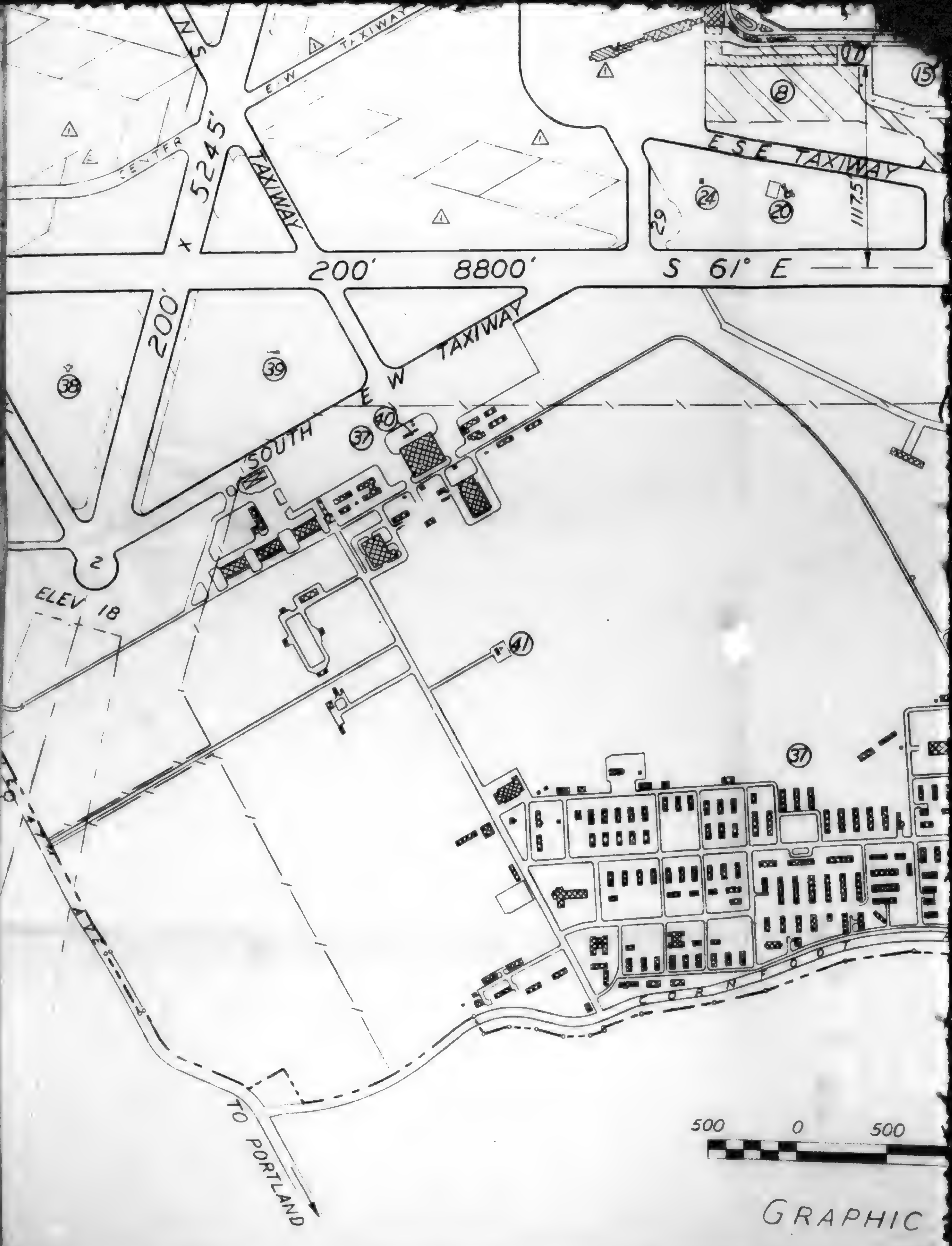
ON 11-29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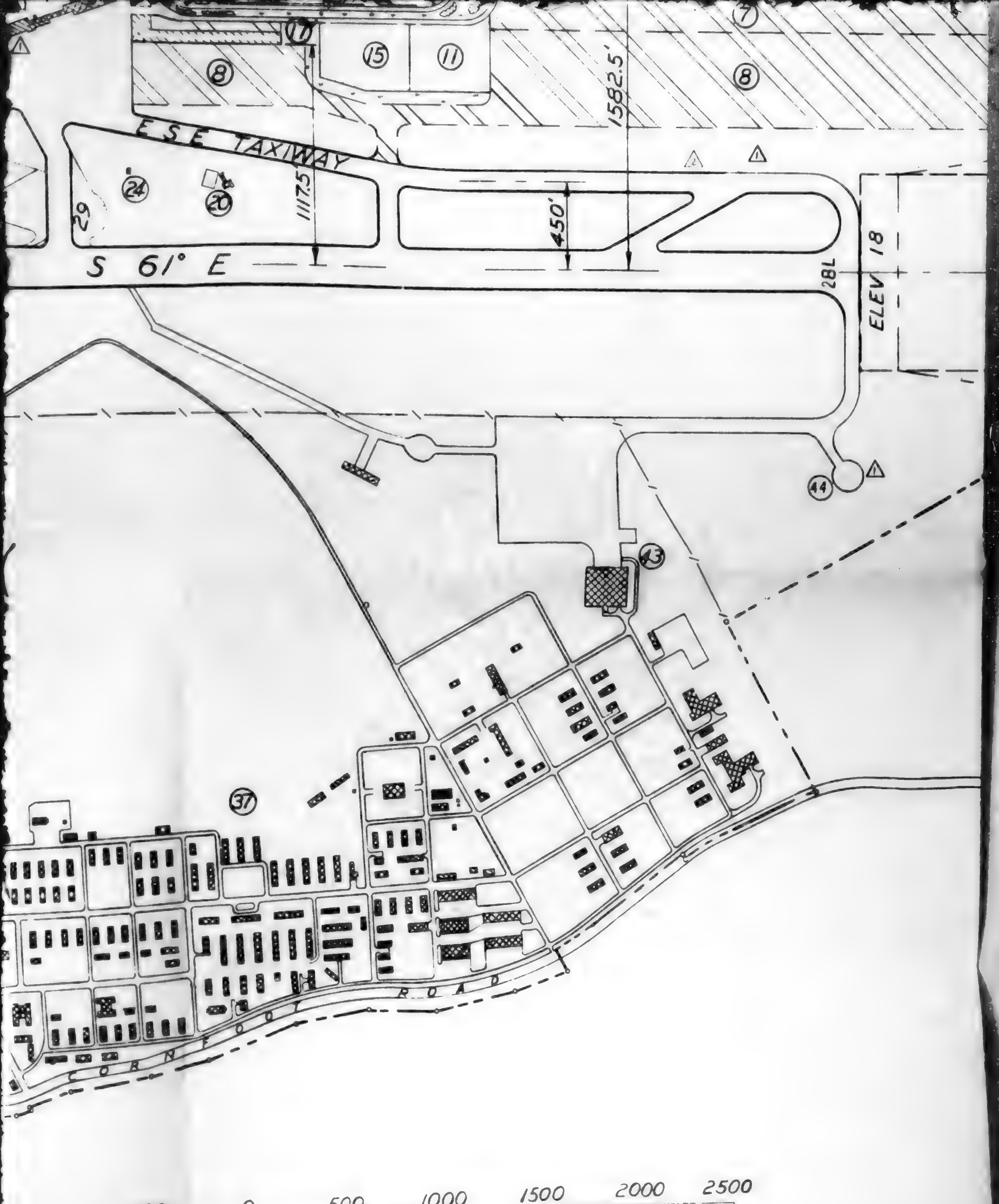
7
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ESE TAXIWAY
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450'
S 61° E
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ELEV 18
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1
43
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ROAD
CORNFOOT
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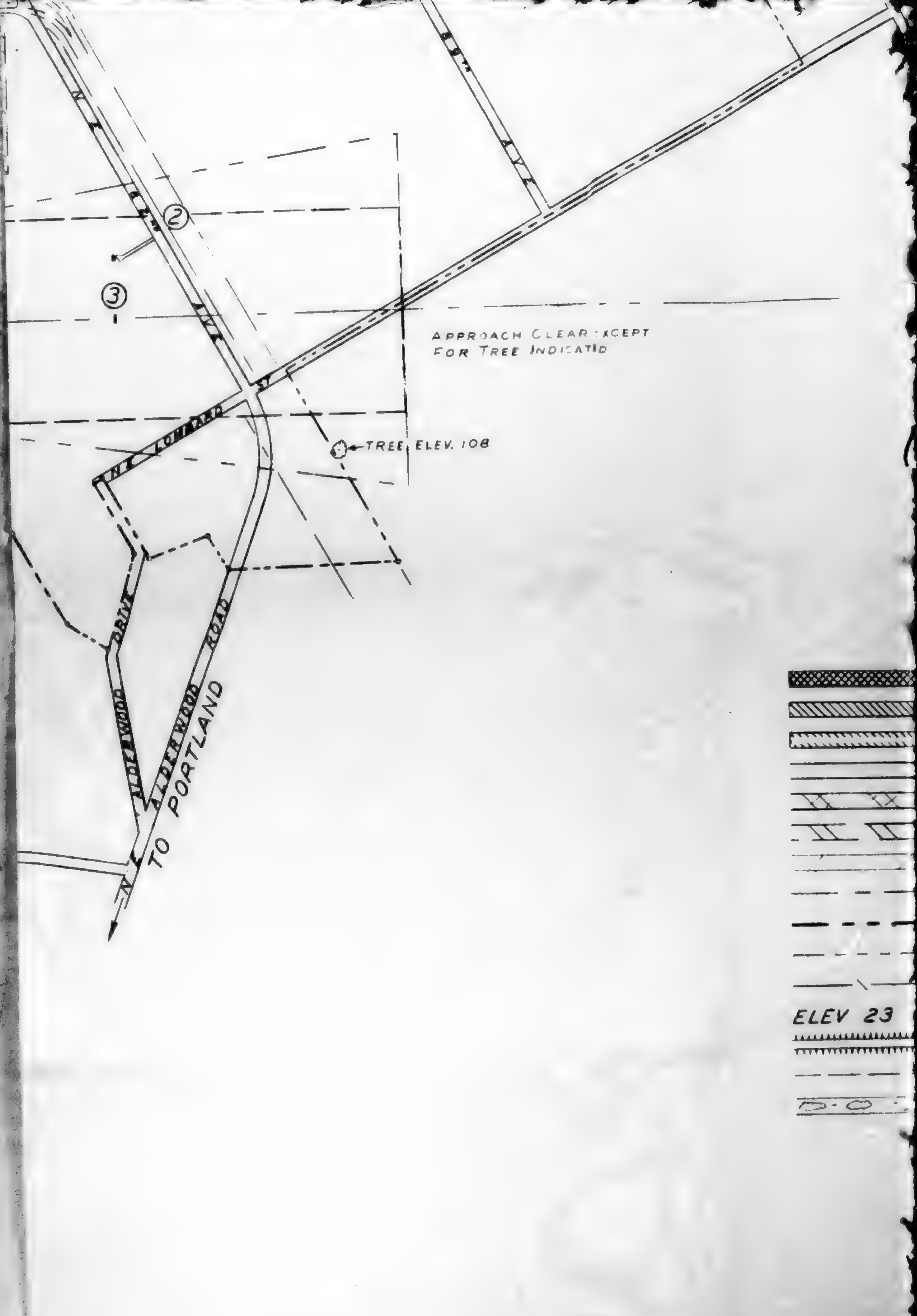
2000
2500
GRAPHIC SCALE


②
③
APPROACH CLEAR EXCEPT
FOR TREE INDICATED
TREE ELEV. 108
NE LOMBARD ST
ALDERWOOD DRIVE
NE ALDERWOOD ROAD
TO PORTLAND
AVE
ELEV 23

26TH AVE
NE SARATOGA ST
NE 105TH AVE
NE PORTLAND BLVD
△

㉑ METERED
㉒ NEW TERM
㉓ TERMINAL
㉔ PRECISION A
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㊶ AIRPORT

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㊹ A.N.G. JET E

## LEGEND

| | |
|---|---|
| ▩ | EXISTING BUILDINGS |
| ▨ | BUILDINGS, INITIAL DEVELOPMENT |
| ▧ | BUILDINGS, FUTURE DEVELOPMENT |
| ▭ | EXISTING PAVEMENT |
| ⊠ | FACILITIES UNDER CONSTRUCTION △ |
| ▱ | PAVEMENT, FUTURE DEVELOPMENT |
| ▭ | PAVEMENT TO BE REMOVED, FUTURE |
| — - — | CENTERLINE |
| — - - — | PROPERTY LINE |
| - - - - | CLEAR ZONE |
| —\— | USAF LEASE LINE |
| ELEV 23 | ELEVATION US C & GS DATUM |
| ⩩ | DIKE EMBANKMENT |
| — — — | DOOLITTLE CLEAR ZONE |
| ▭ | LANDSCAPING △ |

| No | DATE | REVISION |
|---|---|---|
| △2 | 7-29-58 | Add. Landscaping & Const. Legend<br>Rev. Terminal & Cargo Bl<br>to Show as Existing.<br>Added Roads in Area (3<br>Added Parking Lots Area<br>Deleted Holding Apron<br>Rev. Initial Pvmt. to Existin |
| △1 | 4-28-58 | Deleted Stub Taxiway<br>Added Notes to 82689th Av<br>Added A.N.G. Jet En<br>Test Pad.<br>Added International Fa<br>cilities to So Finger<br>Rev. Ctr. E-W Taxiway<br>Rev. Service Station L<br>Rev Holding Apron Loc<br>Rev N Rnwy End Locat<br>& Clear Zones. Rev. No<br>Rnwy. Taxiways. Rev<br>Taxiway, West End |

AYUGA ST
N E 103rd AVE

㉑ METERED PARKING
㉒ NEW TERMINAL BUILDING & CONTROL TOWER
㉓ TERMINAL APRON
㉔ PRECISION APPROACH RADAR BUILDING
㉕ HANGAR BUILDINGS
㉖
㉗ NORTH APRON
㉘ TERMINAL AREA (TO BE CLOSED IN 1958)
㉙ AIRPORT BEACON

㉛ ADMINISTRATION BUILDING
㉜ AIRPORT MAINTENANCE AREA
㉝ CEILOMETER
㉞ LIGHT LANE
㉟ MIDDLE MARKER

㊲ AIR FORCE FACILITIES
㊳ GLIDE PATH UNIT
㊴ TETRAHEDRON
㊵ EXISTING CONTROL TOWER
㊶ AIRPORT SURVEILLANCE RADAR

㊸ AIR NATIONAL GUARD FACILITIES
㊹ A.N.G. JET ENGINE TEST PAD

VELOPMENT
VELOPMENT

ISTRUCTION △
EVELOPMENT
OVED, FUTURE

DATUM

NE

NOTE: MASTER PLAN APPROVED BY THE PORT OF PORTLAND COMMISSION OCT. 14, 1957
PRESIDENT

| No | Date | Revision | By | Appr. |
|---|---|---|---|---|
| △2 | 7-29-58 | Add. Landscaping & Const. Legends<br>Rev. Terminal & Cargo Bldgs to Show as Existing<br>Added Roads in Area 13<br>Added Parking Lots Area 12<br>Deleted Holding Aprons<br>Rev. Initial Pvmt. to Existing | RWC | |
| △1 | 4-28-58 | Deleted Stub Taxiway<br>Added Notes to 82 & 89th Aves.<br>Added A.N.G. Jet Engine Test Pad<br>Added International Facilities to So. Finger<br>Rev. Ctr. E-W Taxiway<br>Rev. Service Station Loc.<br>Rev. Holding Apron Loc's.<br>Rev. N. Rnwy. End Locations & Clear Zones. Rev. North Rnwy. Taxiways. Rev. So. Taxiway, West End | RWC | |

THE PORT OF PORTLAND
PORTLAND INTERNATIONAL AIRPORT
MASTER PLAN
DRAWN BY: R.W. STEWART
DATE: 10-11-57
CHECKED BY: F. YARBROUGH
SCALE:
SUBMITTED BY
OFFICE ENGINEER
APPROVED BY R.A. Kerr
ASS'T GEN. MGR.-AVIATION
APPROVED BY John J. Winn, Jr.
GENERAL MANAGER

PA 57-36

RECEIVED
OCT 2 1957
FOR FILING

September 30, 1957

Mr. C. C. Fulk
Division Engineer
Bureau of Public Roads
412 State Highway Building
Salem, Oregon

Dear Sir:

Reference is made to your letter of September 16 transmitting a small-scale map showing the location proposed by the Washington State Highway Department for the intermediate control point on Interstate Route A at the Oregon-Washington State Line.

We find that the location of Route A in Oregon can be made to meet the control point proposed by the Washington Department, as shown on the map transmitted with your letter and as shown also on the map enclosed herewith. We therefore concur in that location for the control point.

Careful investigation has been made of the obstruction clearances where Route A will pass the Portland International Airport and we have found them to be adequate.

Very truly yours,

W. C. Williams
State Highway Engineer

By

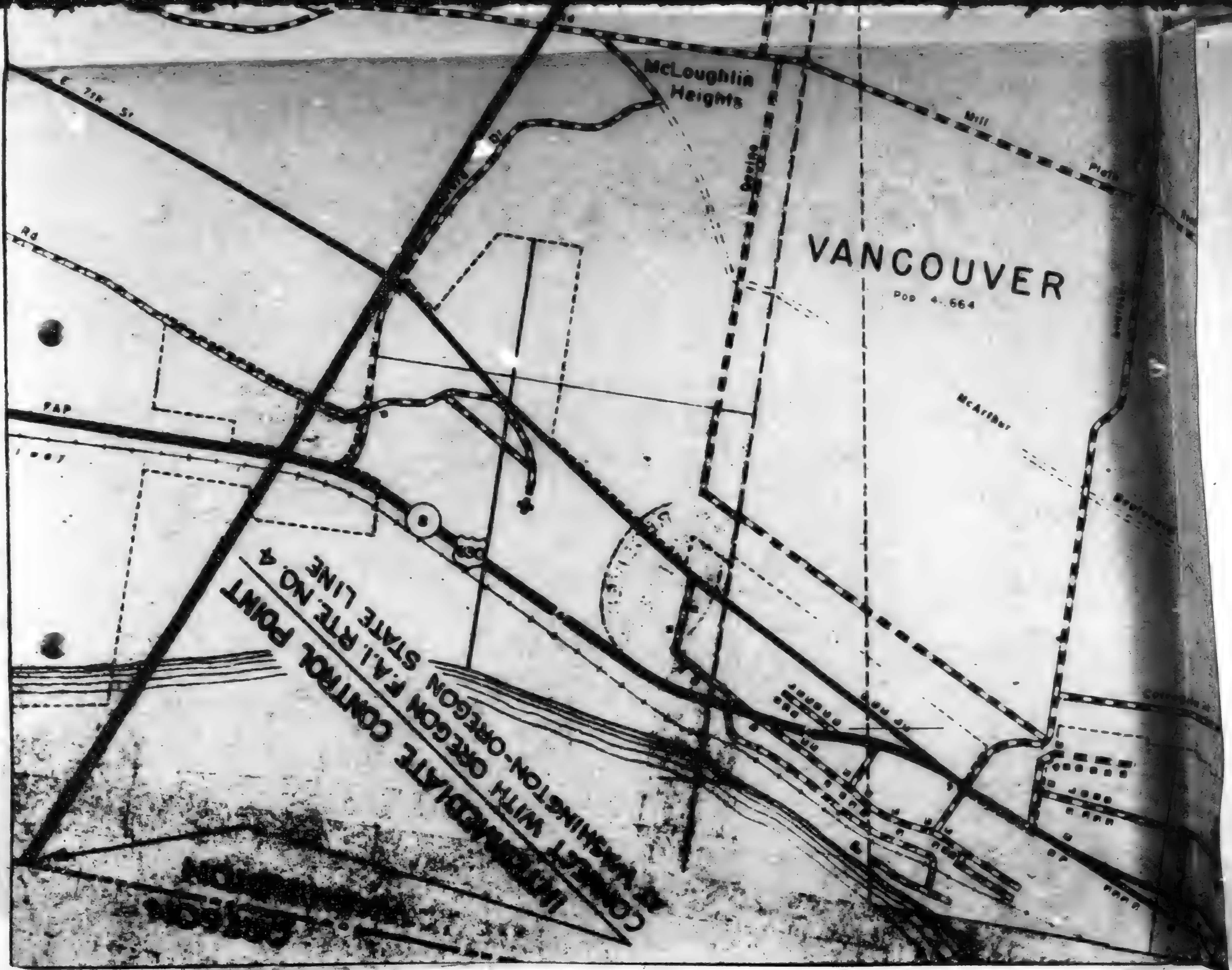
Forrest Cooper
Deputy State Highway Engineer

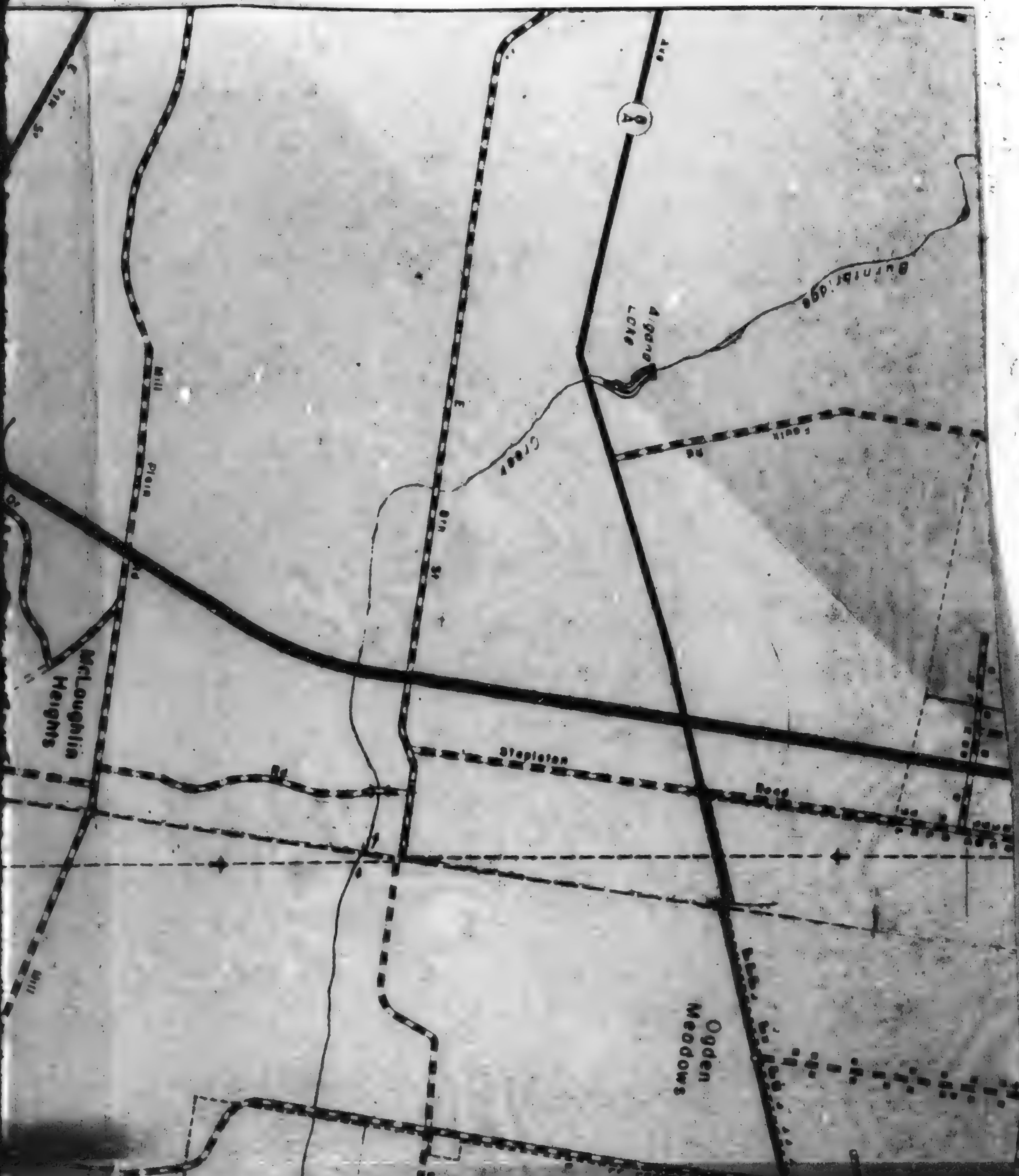
Encl.

cc Mr. W. A. Bugge, Director
Washington Department of Highways
Olympia, Washington

Mr. W. C. Williams
Mr. S. H. Probert
Mr. Tom Edwards
Mr. F. M. Stephenson

(Probert) fm


INTERMEDIATE CONTROL POINT
CONNECT WITH OREGON F.A.I. RTE. NO. 4
AT WASHINGTON-OREGON STATE LINE
OREGON
WASHINGTON
VANCOUVER
Pop 4..664
McLoughlin Heights
E 7th St
Mill
McArthur
Boulevard
Corregidor
FAP


McLoughlin Heights
Ogden Meadows
Stapleton
Road
Mill
Plain
Rd
Mill
Burntbridge
Creek
St
8

DEPARTMENT OF COMMERCE
**BUREAU OF PUBLIC ROADS**
DIVISION EIGHT

OREGON DISTRICT

408 STATE HIGHWAY BLDG.
SALEM, OREGON

08-35

September 16, 1957

Mr. W. C. Williams
State Highway Engineer
Salem, Oregon

PLEASE RETURN TO
FORREST COOPER

Dear Sir:

Reference is made to Mr. Cooper's August 7, 1957 letter regarding the state line connection of Interstate Route 4. Notes of a conference with officials of the Washington State Highway Department, which were attached, indicated that they were still somewhat uncertain as to the location in that State. Further study in collaboration with the Bureau of Public Roads was suggested.

Our Regional office has now advised us that the State of Washington Highway Department has not changed their opinion in any way from that expressed in the documents furnished Messrs. Cooper, Paxson and Edwards during discussions on July 9, 1957. Since your office was in close agreement further discussions appear to be unnecessary.

Therefore, we would appreciate receipt of a statement from your office that you can meet the intermediate control point at the Columbia River on FAI 4 as shown on the attached map. In addition, please certify that controlling airport clearance has been investigated and determined to be adequate. The question of curvature on the bridge, which was previuosly discussed, is a minor one and can easily be resolved at the time of more detailed discussions. Copies of your commitment to the specified intermediate control point will be forwarded to our Regional office and final approval will be granted on the State of Washington request designating their portion of FAI Route 4 as a specific location.

Very truly yours,

CGPolk

C. G. POLK
Division Engineer

Encl.

NOTED
FORREST COOPER

RECEIVED
SEP 17 1957
OFFICE OF
STATE HIGHWAY ENGINEER

August 7, 1957

Mr. C. G. Polk
Division Engineer
Bureau of Public Roads
State Highway Building
Salem, Oregon

Dear Sir:

A meeting was held July 31, 1957 in Vancouver, Washington to discuss in a preliminary manner the plans for the routing of Federal Interstate Highway No. 4 from the Columbia River northerly. The Vancouver Housing Authority is re-platting the McLoughlin Heights area, which lies in the eastern environs of the city of Vancouver and will be affected by the highway routing herein referred to. For your information, I am attaching a copy of some notes which were made by District Engineer Bailey of the Washington Department. The gist of the whole matter is that the redevelopment and platting of the Housing Area will be affected by the highway location, and it is the desire of the Housing Authority to establish, if possible, in the immediate future, a definite location for the route.

This matter is complicated by the fact that two states are involved. It was suggested that the matter be given further study by the States of Oregon and Washington in collaboration with the Bureau of Public Roads with the idea of establishing controls at the river crossing, so that the final projection and location could be made on the Washington unit. It was agreed by the Washington Highway people that they would take the matter up with the Division Engineer for the Bureau of Public Roads at Olympia and that I would inform you, so that we might have your thinking as to what steps should be taken to establish the necessary controls. I shall be glad to discuss the matter with you or give you any information that you might desire. Will you please advise me.

Very truly yours,

W. C. Williams
State Highway Engineer

By

Forrest Cooper
Deputy State Highway Engineer

FC:me
Encl.

cc Mr. W. C. Williams
Mr. Tom Edwards

Copy sent to Mr. Bugge

## Meeting at Washington State Highway Department
## Vancouver District Office
### July 31, 1957

A meeting was held in the District Engineer's office in Vancouver, at 10:00 AM, July 31st with the following persons in attendance:

| | |
|---|---|
| Mr. R. H. Kenyon, | Washington Highway Dept., Olympia |
| Mr. R. E. Furtell, | " " " " |
| Mr. W. A. Bailey | " " " Vancouver |
| Mr. E. E. Nielson, | " " " " |
| Mr. J. A. Gallagher, Jr., | " " " " |
| Mr. V. A. Mattson, | " " " " |
| Mr. Ferrest Cooper, | Oregon Highway Dept., Salem, Oregon |
| Mr. Tom Edwards | " " " " |
| Mr. J. E. Neal, | City of Vancouver |
| Mr. B. J. Smith, | " " " |
| Mr. E. H. Hendrickson, | " " " |
| Mr. Bud Schwarz | Clark County Engineer's Office |
| Mr. Harlan Nelson, | Vancouver Housing Authority |
| Mr. Verlan Pinson, | Vancouver School District |
| Mr. John Camp | Clark County, Vancouver, Highway Coordinating Committee |
| Mr. Freh Lehman, | " " " " " " |

The purpose of this meeting was to discuss the proposed location of the bypass route known as Federal Aid Interstate No. 4 and the effect upon the City of Vancouver. The general location of this route is an extension of 33rd Avenue in Portland northerly past the west edge of the Portland Airport, crossing the Columbia River with a bridge. Thence northerly to the Washington shore, crossing Primary State Highway No. 8 near Blandford Drive, and proceeding through the McLoughlin Heights area via a route near Blandford Drive.

Mr. Cooper presented the proposed plan on the Oregon side and discussed the reasons for the tentative location selected, the key control point for this alignment being the Portland Airport. The Laurelhurst Freeway connects to the Banfield Freeway near 39th Avenue and proceeds north past the airport on 33rd Avenue extension to the proposed bridge location. The regulations of the Civil Aeronautics Administration govern the vertical clearances for the bridge structure. Mr. Cooper stated that it would be near the end of the 13 year program before this freeway would be constructed, although the studies for the location would probably be completed in the next three years.

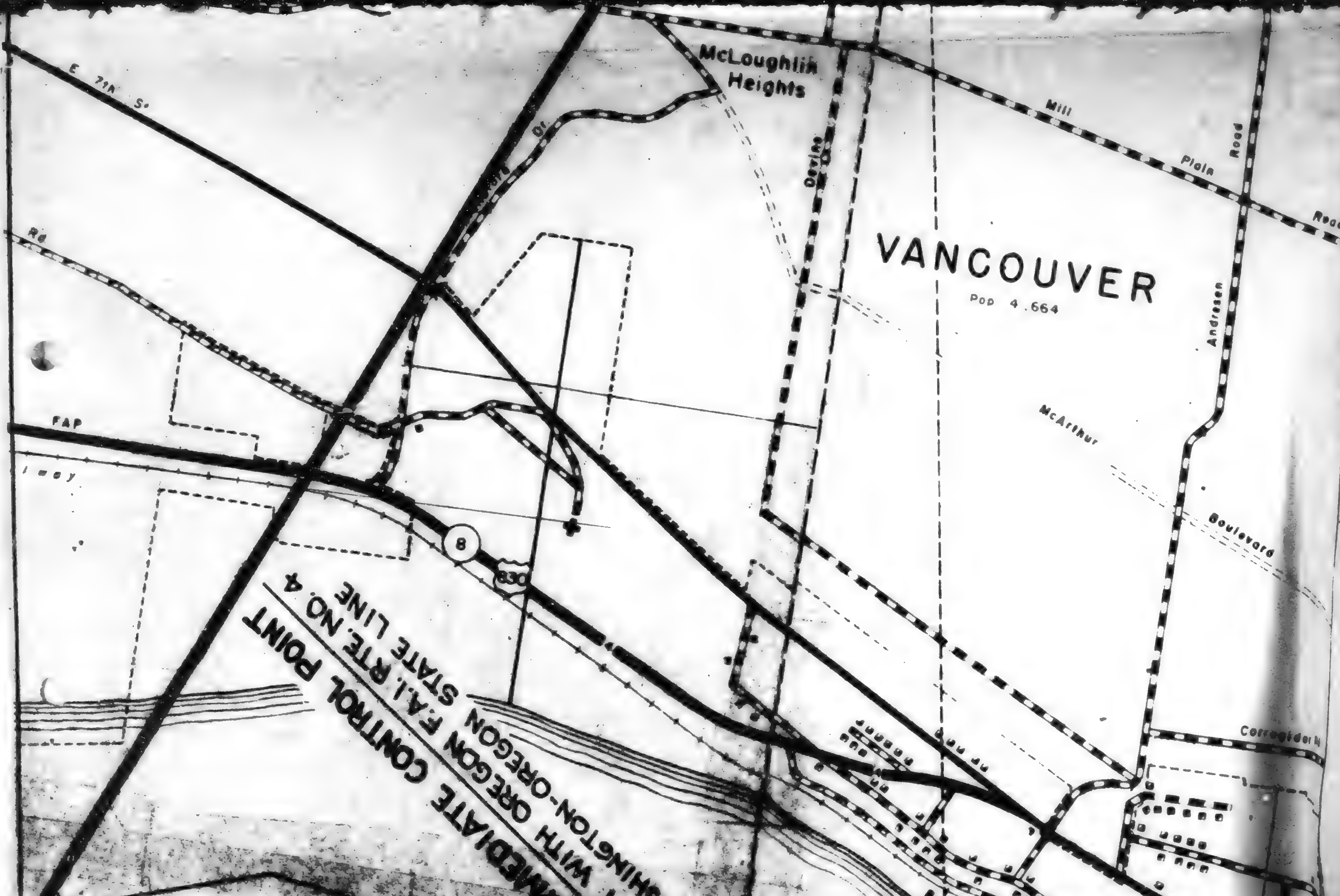
Mr. Camp inquired about a future water-level route between Vancouver and Longview and its possibility. Mr. Kenyon replied that the present route of US 99 is being developed to handle the traffic and that it would not be economical to build this water-level route. Mr. Cooper commented that traffic studies show that the proposed F. A. I. No. 4 route will follow the desire lines of travel of the motorists.

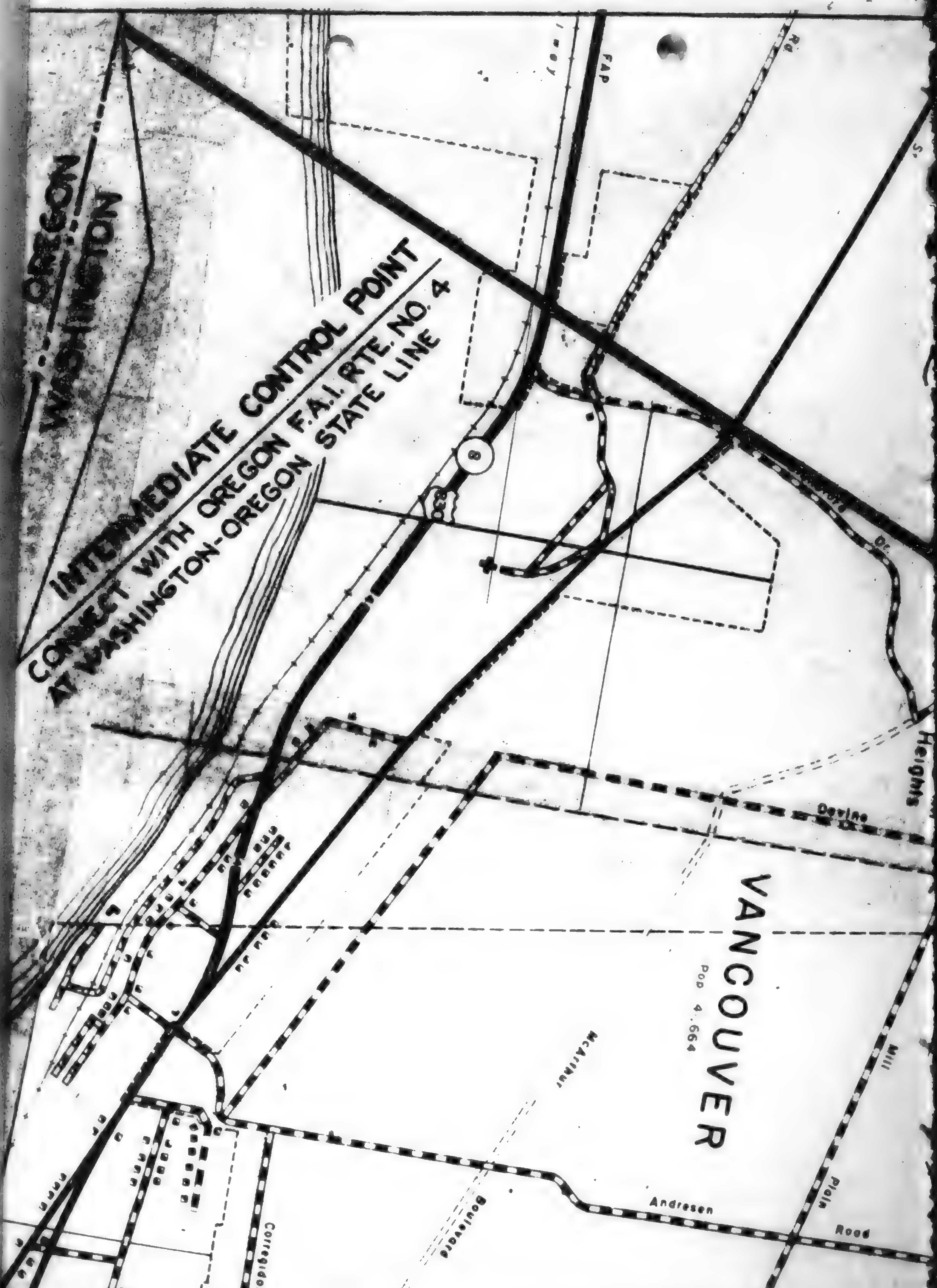
Mr. Hendrickson asked if there was anything definite regarding the location of the new route up Blandford Drive and through the McLoughlin Heights area as the Vancouver Housing Authority is anxious to complete their plans for the redevelopment of the Heights area. The proposed route goes right through an area that has been set aside for a school and this creates quite a problem for the school planners. Mr. Kenyon stated the situation of the Washington Highway Department and the necessary approvals required from the Bureau of Public Roads.

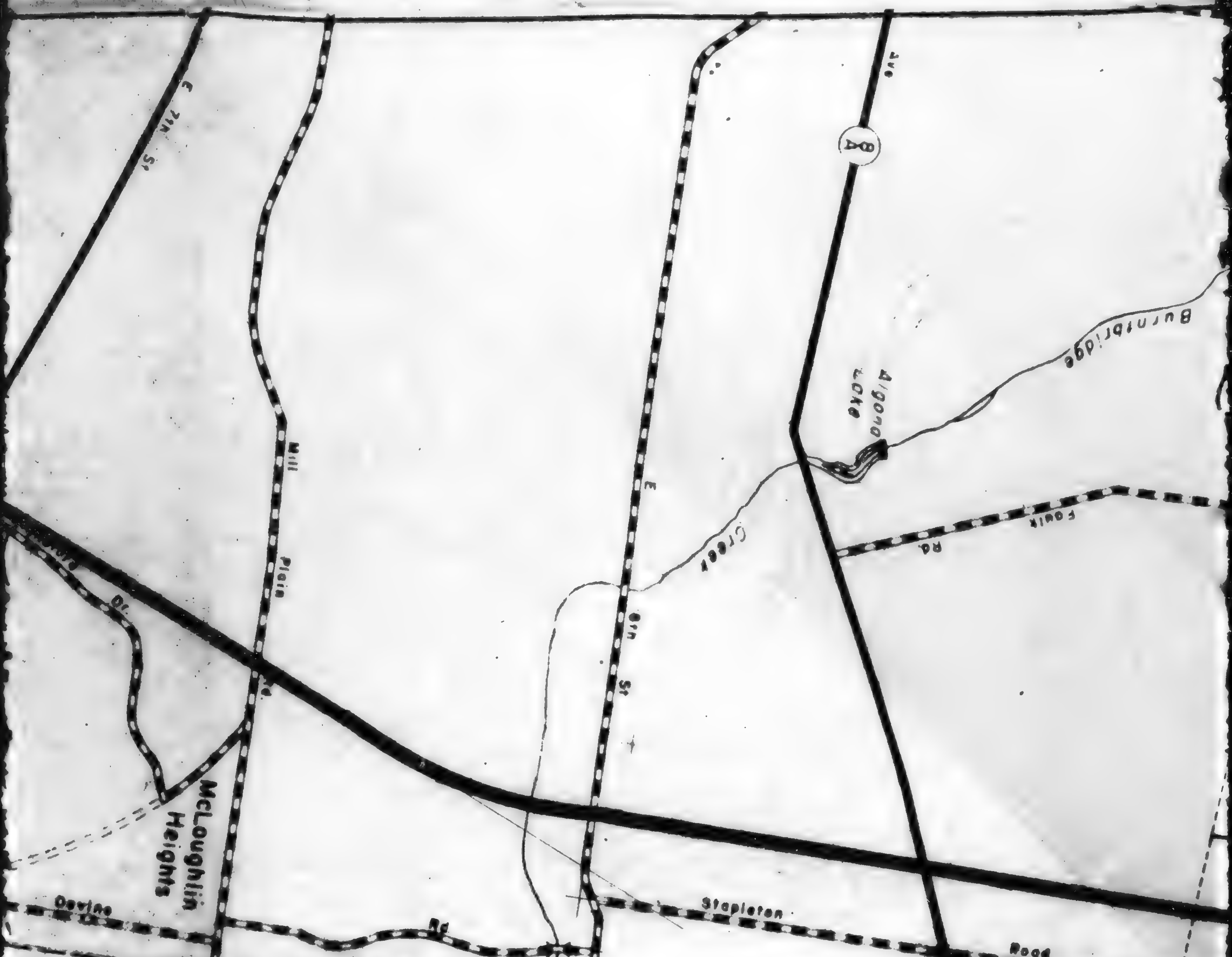
Mr. Nelson explained the Housing Authority's Master Plan for the redevelopment the McLoughlin Heights area and how the proposed new highway route will affect ir planning and presently completed redevelopment. He explained that all their nning was on the basis of the new route to utilize a tunnel under Harney Hill and s miss their development. If they knew the definite location of the new route Blandford Drive, then they can redesign the area affected to complete their work the Heights area.

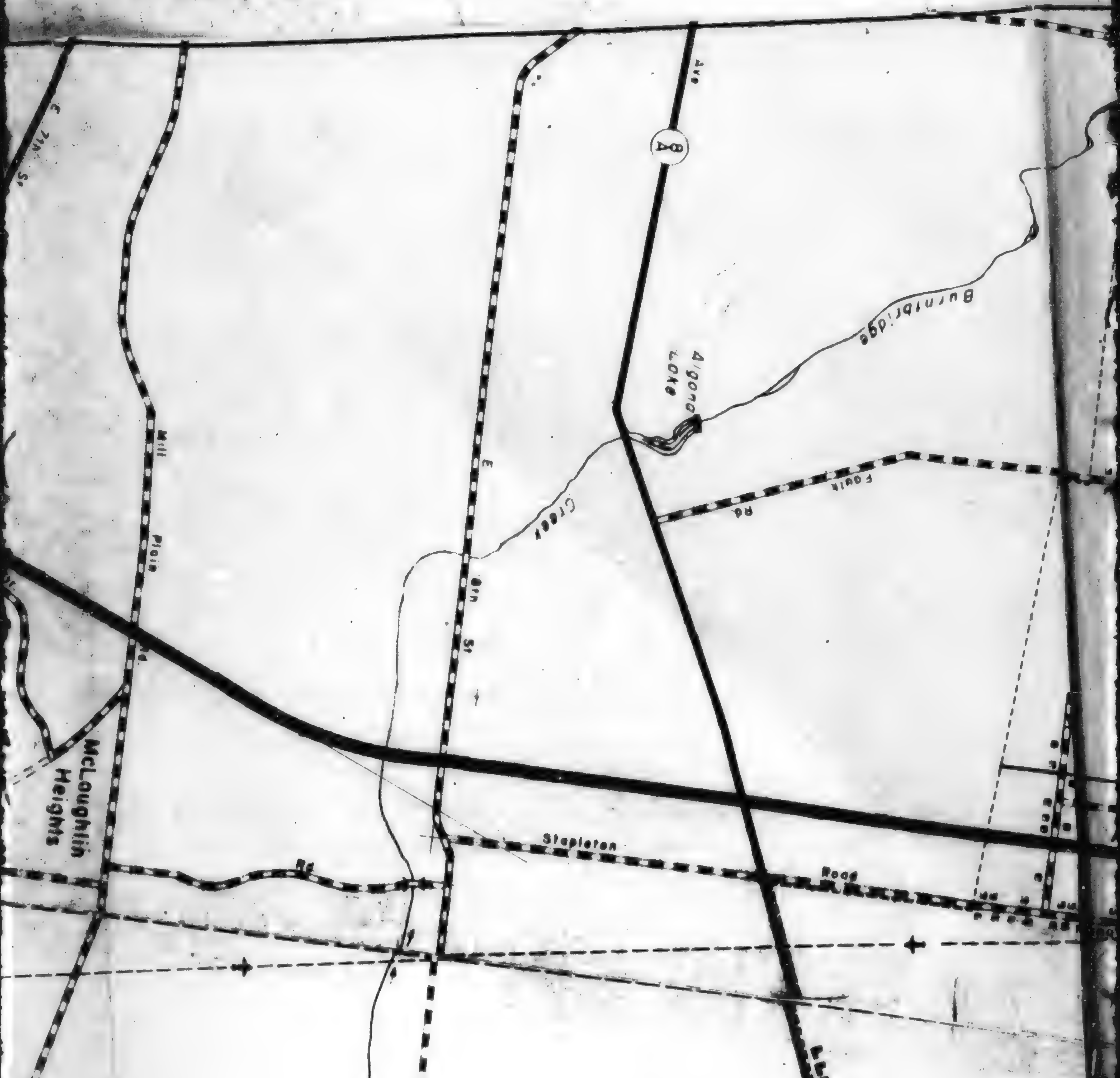
Mr. Kenyon suggested that since the location of the Columbia River crossing ucture governs the location on the Washington side, that the Bureau of Public ds Division Office be contacted to see if a definite answer could be obtained for the location of the bridge. Mr. Cooper concurred on this suggestion. Mr. Smith suggested that the Bureau of Public Roads should be included in a future meeting so that they could be confronted with the importance of an early decision on the route location.

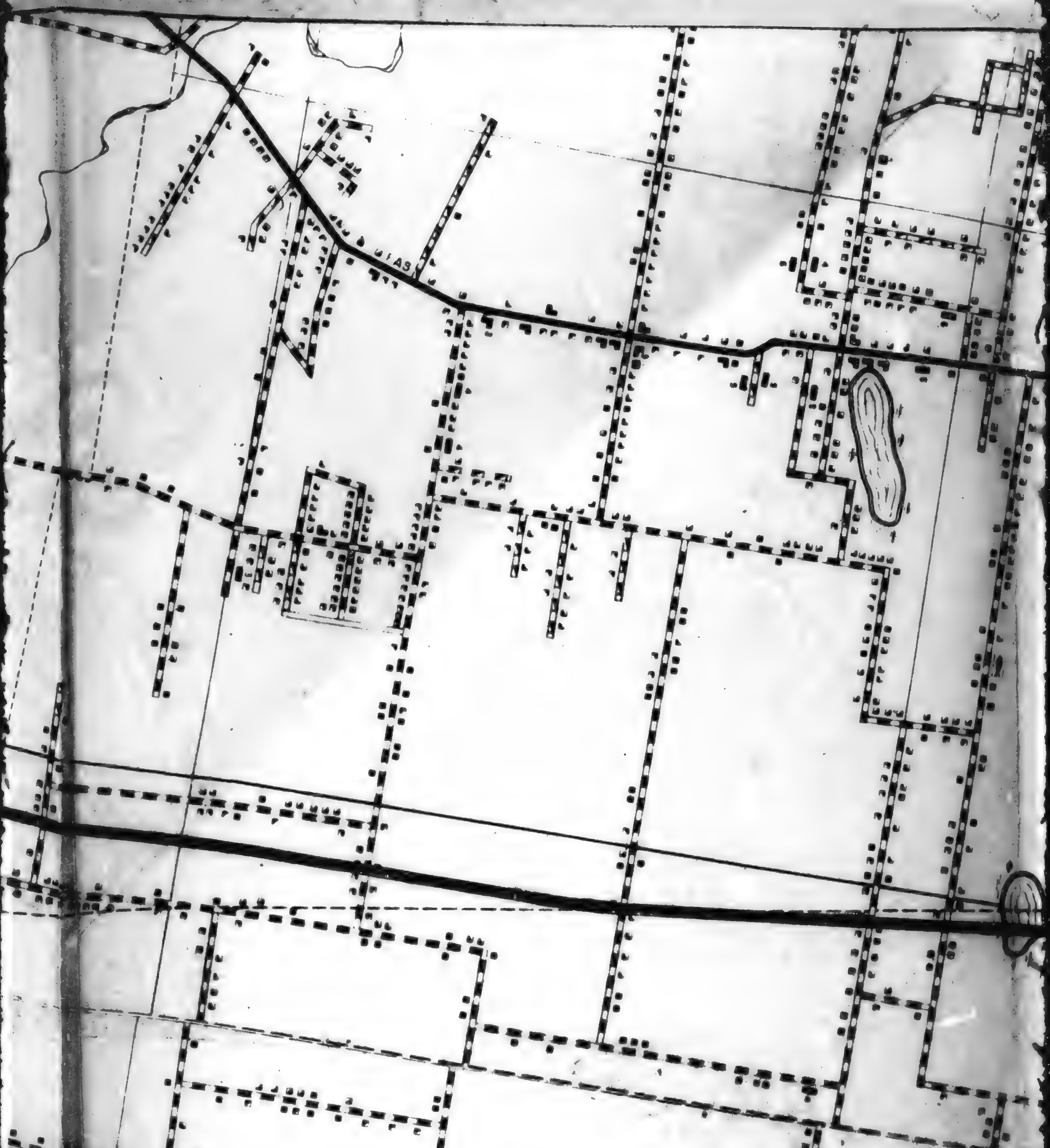
Mr. Nelson asked if the tentative location up Blandford Drive could be shifted o the east of a sufficient distance so as to miss the present development and houses in he South Cliff Addition where some expensive new homes have already been constructed. r. Mattson stated that he believed that he has checked this proposed shift and found it o be feasible. Mr. Bailey stated that he would have contours taken through this area o a better understanding could be obtained of the ground conditions and what can be one.

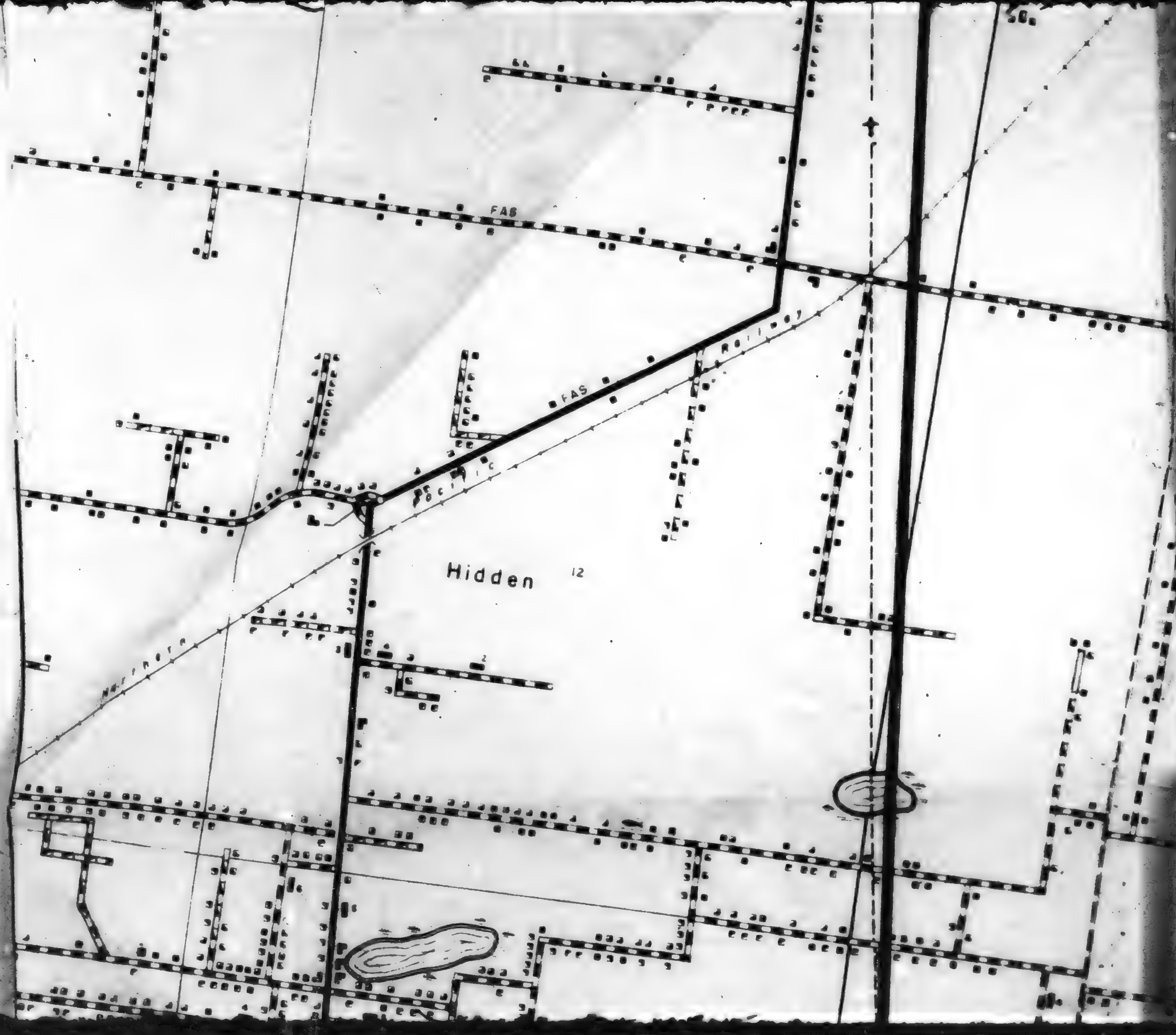

INTERMEDIATE CONTROL POINT
CONNECT WITH OREGON F.A.I. RTE. NO. 4
AT WASHINGTON-OREGON STATE LINE
OREGON
WASHINGTON
VANCOUVER
Pop 4,664
McLoughlin Heights
Mill Plain Road
Devine
Andresen Road
McArthur Boulevard
Corregidor
E 7th St
Rd
Dr.
FAP
Hwy
8
830

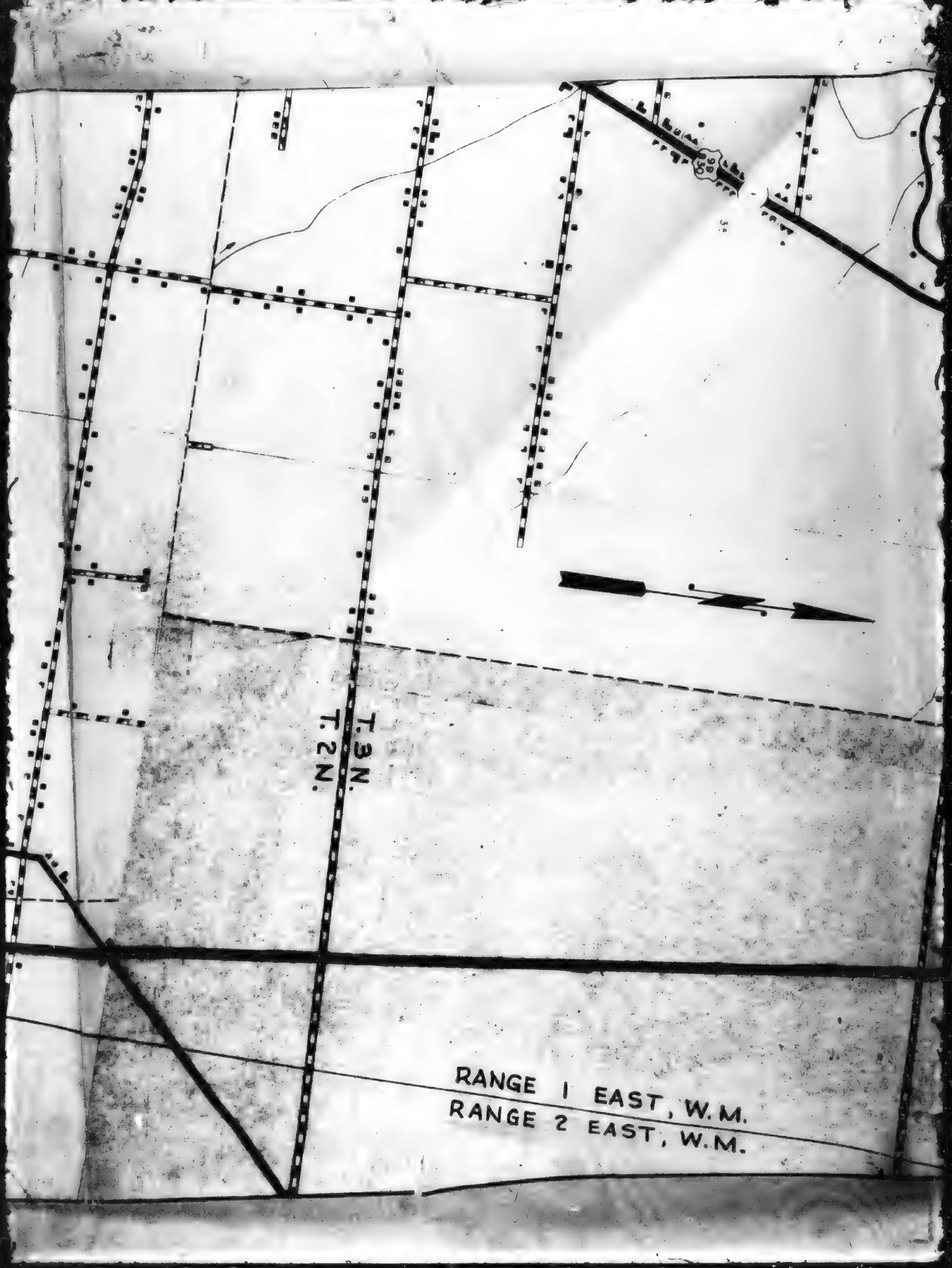

OREGON
WASHINGTON
INTERMEDIATE CONTROL POINT
CONNECT WITH OREGON F.A.I. RTE. NO. 4
AT WASHINGTON-OREGON STATE LINE
FAP
Rd
Dr.
Heights
Devine
VANCOUVER
Pop 4,664
McArthur
Boulevard
Mill
Plain
Road
Andresen
Road
Corregidor Rd


E 7th St
Ave
Mill Plain
E 8th St
Burntbridge Creek
Algona Lake
Rd
McLoughlin Heights
Devine Rd
Stapleton Road
Ogden Meadows
Mill Plain Road

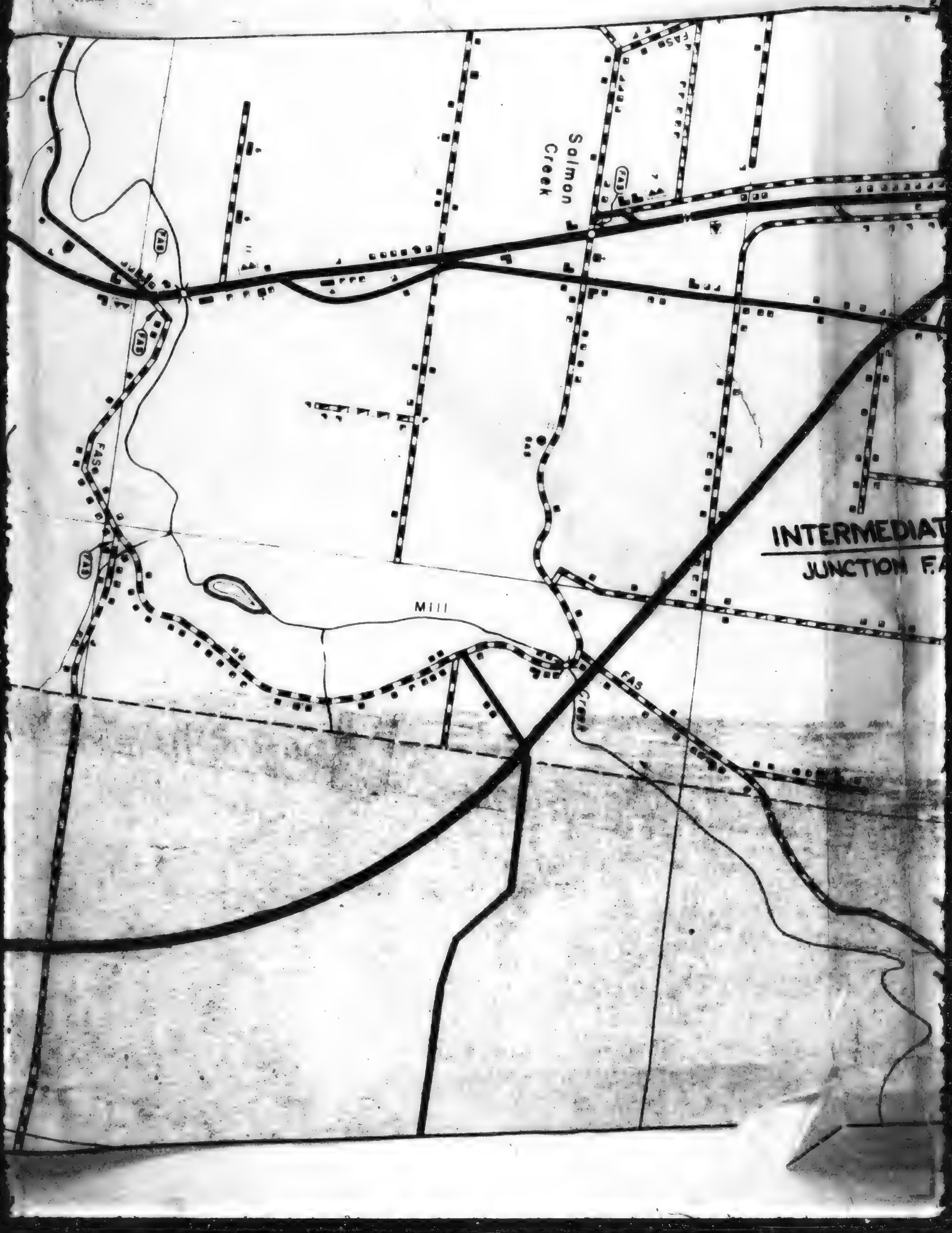

E 71st St
Ave
Mill Plain Rd
E 8th St
Burntbridge Creek
Algona Lake
Falk Rd
McLoughlin Heights
Stapleton Road
Rd
Ogden Meadows
Mill
Road

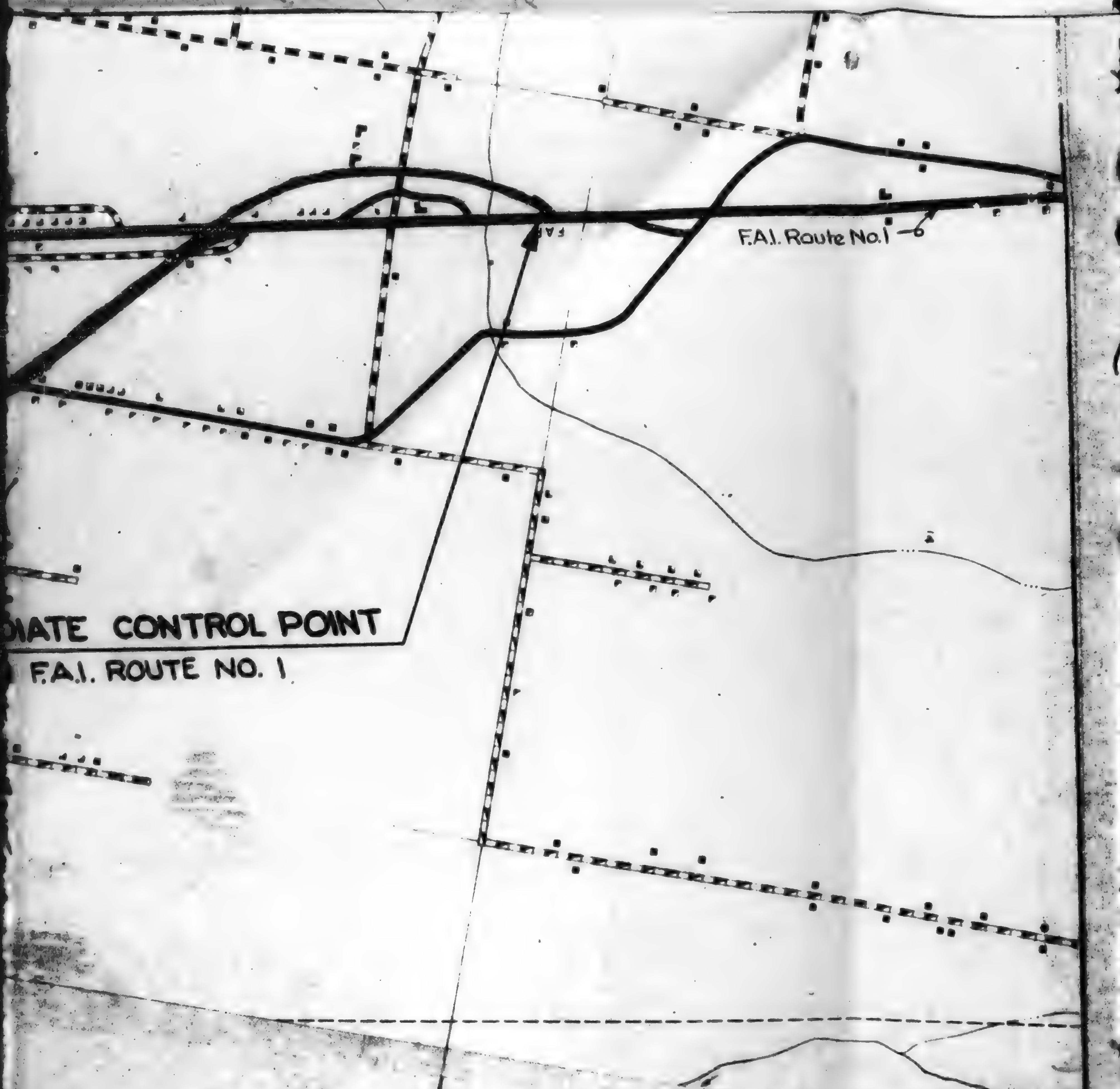

AS


FAS
FAS
Railway
Pacific
Hidden
12
Northern



T.3N.
T.2N.
RANGE 1 EAST, W.M.
RANGE 2 EAST, W.M.


Salmon Creek
FAS
FAS
FAS
FAS
FAS
FAS
FAS
INTERMEDIAT
JUNCTION F.A
Mill
Creek


F.A.I. Route No. 1 —6
DIATE CONTROL POINT
F.A.I. ROUTE NO. 1

# LEGEND

Federal Aid Project Interstate Ultimate
Approved Intermediate Control Points ═

WASHINGTON STATE HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS
OLYMPIA, WASHINGTON

# INTERMEDIATE CONTROL POINTS
# FEDERAL AID INTERSTATE ROUTE No. 4

Scale: 1 Inch = 880 Feet
Date: March 8, 1957

Intermediate Control Points

Approved: ______________________ ______________
District Engineer Date

1979 Columbia R. Br. (N. Channel 890
Superstruc.) I-205
Pedestrian Crossing & Bikeway #2

§1.5 Bikeway
Sp

VICTOR ATIYEH
GOVERNOR

*Department of Transportation*
**HIGHWAY DIVISION**
**TRANSPORTATION BUILDING, SALEM, OREGON 97310**

In Reply Refer to
File No.:

11 December 1984

Mr. Scott Coulter
Department of Transportation
Highway Division
Transportation Building
Salem, OR 97310

Dear Mr. Coulter:

The Oregon Bicycle Advisory Committee was consulted regarding the construction and placement of fire protection facilities in the bike path on the Glenn Jackson Bridge at its meeting November 1-2, 1984.

The Committee voted unanimously that it was not in favor of the placement of any fire protection facilities in the bike path right of way.

If the Committee can be of any further assistance regarding this matter, please let us know.

Sincerely,

Richard P. Cramer

Richard P. Cramer, Chairman
Oregon Bicycle Advisory Committee

RPC:erw

cc: John Grassman

cc: Ed Hardt
Walt Hart
[illegible]
12-12-84

RECEIVED
STATE HWY ENGR

DEC 12 '84

REFER TO
Hunter

FOR

| Info | Inves | R/D | D/R | Sign | Act | File |
|---|---|---|---|---|---|---|
| | | | | | | |

ey ?

BICYCLE ADVISORY COMMITTEE

Richard Cramer, Chairperson
Corvallis

Janet Schaeffer, Vice Chairperson
Portland

Ruth Bascom
Eugene

Dan Chamness
Prineville

Cynthia Hartmann
Coos Bay

Denis Pimentel
Bend

Christina Porter
Corvallis

Don Stathos
Medford

Form 734-3122

8905
bikeway

VICTOR ATIYEH
GOVERNOR

*Department of Transportation*
**HIGHWAY DIVISION**
Region I
9002 SE. McLOUGHLIN, MILWAUKIE, OREGON 97222 PHONE 653-3090

**NOTED**
**H. S. COULTER**

December 20, 1982

In Reply Refer To
File No

Ed W. Ferguson
District Administrator
WDOT
P. O. Box 1709
Vancouver, WA 98668

Dear Sir:

Your December 13 letter discussed bicycle operations on the I-205 bridge between Washington and Oregon. We have posted signs at the Oregon end of the structure which prohibit bicyclists (non-motorized vehicles) from using the bridge roadway. The bicycle path located on the structure should be available within a couple of months. Assuming there will be little desire by bicyclists to cross the bridge in January and February, this should take care of the problem.

Sincerely,

ORIGINAL SIGNED BY
EDWARD L. HARDT

Edward L. Hardt
Metro Region Engineer

ELH/cp
bc H. S. Coulter w/attachment
L. E. George "
Maury Payne "

RECEIVED
STATE HWY ENGR
DEC 21 '82
REFER TO
FOR
Info Inves R/D D/R Sign Act File

734-1850

JOHN SPELLMAN
Governor

DUANE BERENTSON
Secretary

STATE OF WASHINGTON
DEPARTMENT OF TRANSPORTATION
*Office of District Administrator • 4200 Main Street, P.O. Box 1709 • Vancouver, Washington 98668*

December 13, 1982

OM MRE OE PPM CE
TCS RECEIVED ME
US DEC 14 1982 PDM
CSA Metro Region TAM
SO PA EM BUD LM

Mr. Ed Hardt
Oregon Department of Transportation
9002 S. E. McLoughlin
Milwaukie, OR 97222

Re: I-205 Columbia River Bridge

Dear Mr. Hardt:

This is to advise you of Washington State's regulations pertaining to bicycles on Interstate 205 in Washington State.

Bicycles are allowed on the right shoulder of Interstates except where prohibited by (approved regulation and) appropriate signing. By action of the State Maintenance and Operations Engineer December 3, 1982, bicycles crossing the I-205 Columbia River Bridge in Washington must use the designated bike routes. This regulation was proposed by the District with Washington State Patrol concurrence.

The designated bike route is the "Pedestrian-Bike Path" between the structures including the signed pathways to and from the bridge and I-205 north of the I-205/SR-14 interchange.

Several recent articles by the local press indicate some confusion may exist between our respective State's rules. We respectfully request your assistance to provide cyclists the information above. We envision this could be done by placement of signing in Oregon that would direct all northbound cyclists to use the pedestrian-bicyle path when completed. Hopefully this will alleviate any misunderstandings in the cycling community when they enter Washington.

Should you have any questions or thoughts regarding bike regulations, please feel free to give me a call.

Yours very truly,

Ed W Ferguson

ED W. FERGUSON, P.E.
District Administrator

EWF:m

c.c. - Records Control
Captain R. L. Bullock
Washington State Patrol

8905

8

FORM E-30 (REV. 10-69)

**OREGON STATE HIGHWAY DIVISION**
INTER-DEPARTMENT CORRESPONDENCE

December 20, 1973

RECEIVED
DEC 20 1973
OFFICE OF
ASSISTANT STATE HIGHWAY ENGINEER

SUBJECT: Pedestrian/Bicycle Path
South Access Ramp
I-205, Columbia River Bridge

To: Walter J. Hart
Bridge Engineer

NOTED
E. S. HUNTER

From a study of six alternates (A through F) for continuing the path further south with the concept of crossing NE Marine Drive with a grade separation structure, we find that Alternate D is the most desirable for providing access to the subject bicycle/pedestrian facility. Reasons for selecting Alternate D are:

1. Provides the proper alignment for an overcrossing of Marine Drive.
2. Allows for a separated bikeway along the Marine Drive dike for east-west access and a potential to develop the 3,000 feet of dike that will no longer be used for highway purposes.
3. Provides for the maximum amount of bikeway access and flexibility of bikeway design and connections.
4. Allows the relocated Marine Drive construction to be closer to the existing dike resulting in a shorter length of the mainline structures. Estimated costs are $10,000 per foot in this area. This savings in structure length will offset the cost of the Marine Drive bikeway separation structure.

In reviewing Sverdrup & Parcel's two alternate schemes, J and K, it appears that Scheme J best fits Alternate D. It is noted that Scheme K will require cutting into the dike; however, if Scheme J, modified as shown on the attached sketch, interferes with marine traffic or clearances, it is possible that Scheme K could be considered if it were modified to provide for a grade separation and access as discussed above. A grade separation at Marine Drive (8000 ADT plus 45 mph traffic) is felt to be necessary.

Victor D. Wolfe
Victor D. Wolfe
Location Engineer

Att.
WHT/JDM:jp/mc cc: E.S. Hunter✓ J.H. Versteeg

SVERDRUP & PARCEL AND ASSOCIATES, Inc.
*Consulting Engineers*
505 - 106TH AVENUE N. E.
P. O. BOX 369
BELLEVUE, WASHINGTON 98004

December 14, 1973

Oregon State Highway Division
Highway Building
Salem, Oregon 97310

Attention: Mr. Walter J. Hart
Bridge Engineer

Gentlemen:

Subject: I-205 Columbia River Bridge
Bridge 9555
Pedestrian-Bike Path
South Access Ramp

Enclosed for your consideration are prints of two alternative configurations for the subject ramp. These were developed on the basis of the seven page discussion forwarded with our letter dated October 15, 1973. Structural details for the suspended portion of the ramps are the same as forwarded with our letter dated November 13, 1973, for the North Access Ramp.

The two alternative ramps connect to the levee on which Marine Drive is presently located and along which a bikeway is planned. At the bridge site, Marine Drive will be relocated to the south of the levee in order to attain the required vertical clearance. We have assumed that the planned bikeway will also be located to the south of the levee.

Scheme J provides access to the top of the levee and thence easterly to connect with the planned bikeway, clearing the northbound bridge by virtue of a small cut in the levee. A deeper cut would be required to clear the southbound bridge. Scheme J has the disadvantage that the ramp encroaches approximately three feet into the vertical clearance under Span 45 of the main bridge. However, the level landing area provided above the horizontal curve provides better bicycle operation than Scheme K.

RECEIVED
DEC 17 1973
BRIDGE DIVISION

Scheme K provides access to relocated Marine Drive. The length of suspended ramp is minimized and the levee protection preserved by the use of a short 8 percent grade. Vertical clearances over the river are not affected by this ramp.

We recommend the ramp configuration of Scheme K because it does not reduce navigational clearances, has a minimal visual impact, and has the lower construction cost.

Very truly yours,

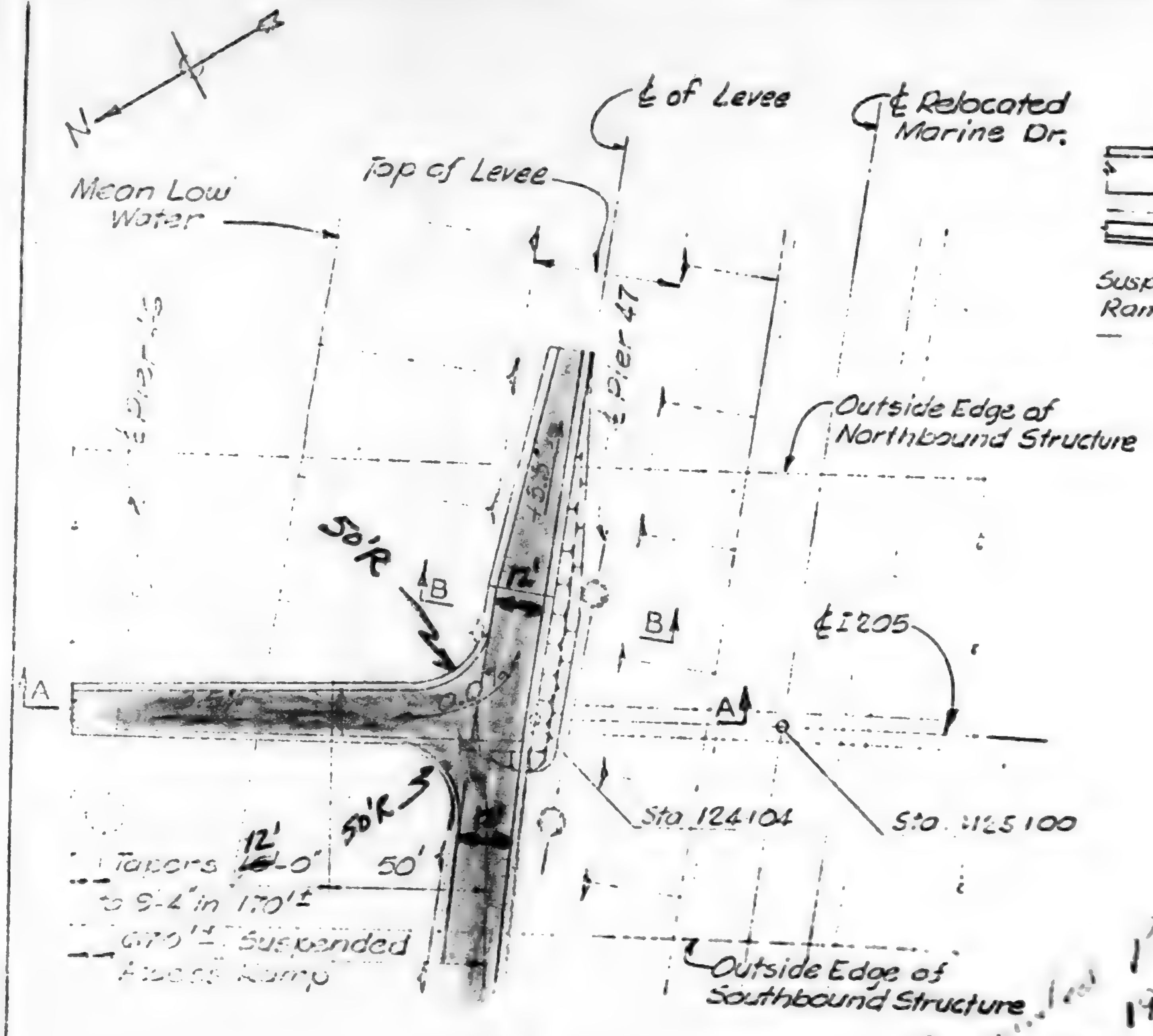
SVERDRUP & PARCEL AND ASSOCIATES, Inc.

Jack Allen

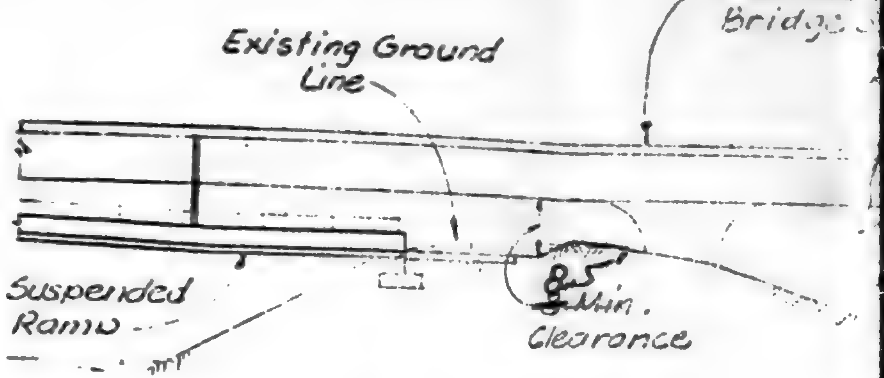
R. Jack Allen, P. E.
Project Engineer

Enclosures

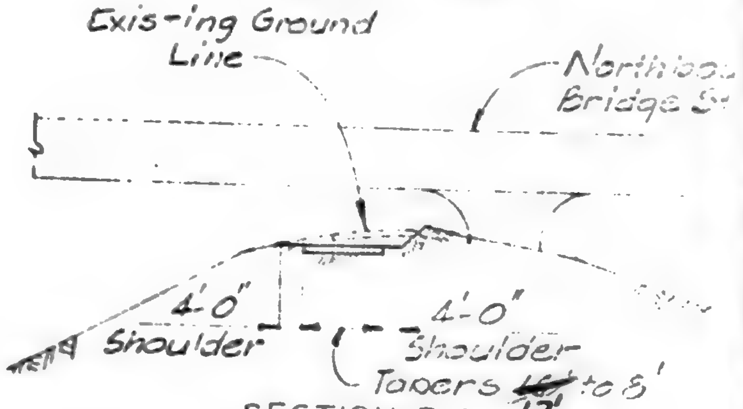
cc: Robert N. Bothman


N
Mean Low Water
Top of Levee
℄ of Levee
℄ Relocated Marine Dr.
℄ Pier 46
℄ Pier 47
Outside Edge of Northbound Structure
50'R
50'R
12'
12'
+5.5%
B
B
A
A
℄ I205
Sta 124+04
Sta 125+00
Tapers 12'-0" to 9'-4" in 170'±
50'
670'± Suspended Access Ramp
Outside Edge of Southbound Structure

PLAN
Scale 1" = 40'


Existing Ground Line
Northbound Bridge S
Suspended Ramp
8.5' Min. Clearance

SECTION A-A
Scale 1" = 20'


Existing Ground Line
Northbound Bridge S
4'-0" Shoulder
4'-0" Shoulder
Tapers ~~10'~~ 12' to 8'

SECTION B-B
Scale 1" = 20'

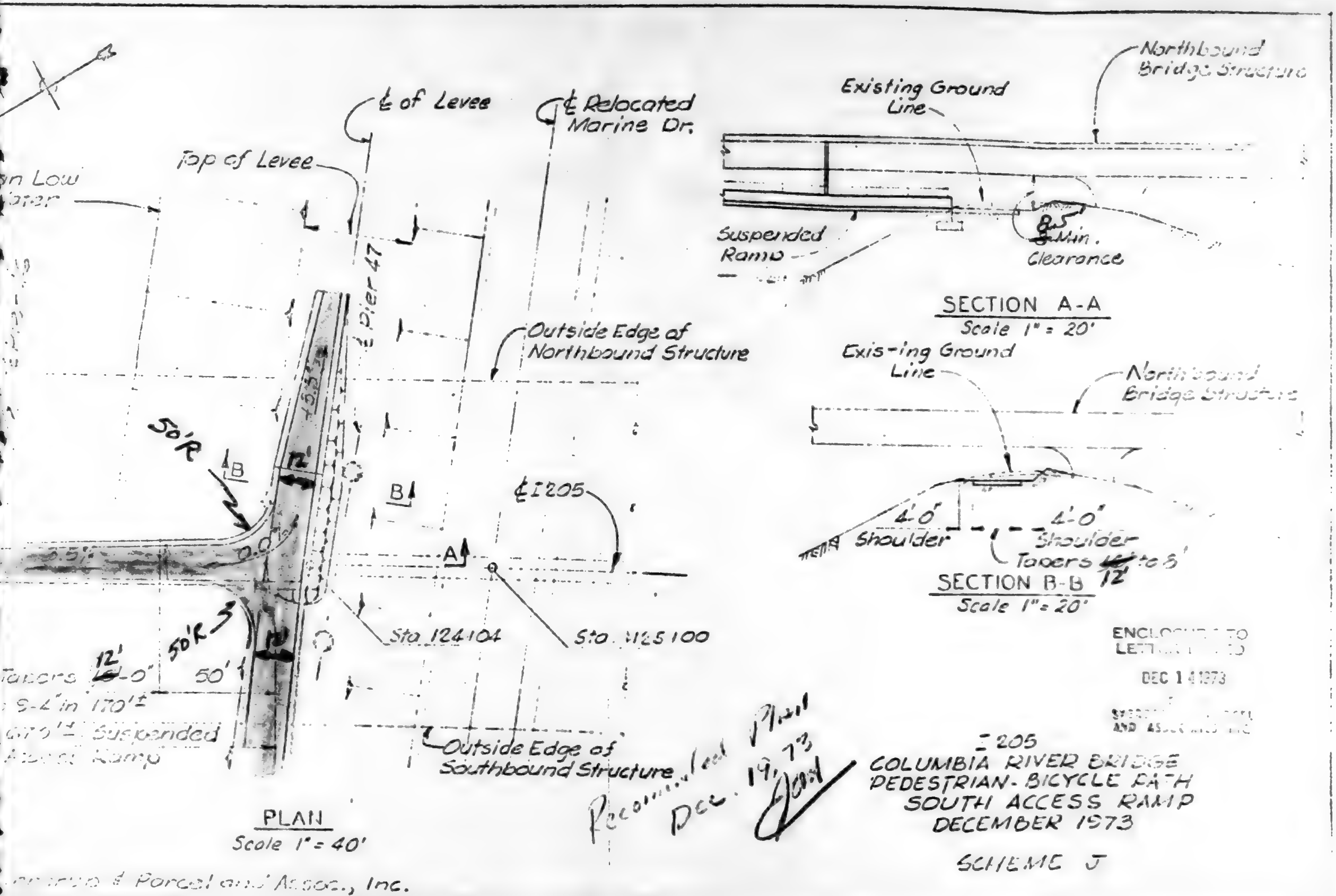
ENCLOSURE T
LETTER
DEC 14 1973
SVERD
AND ASSOCIATES

Recommended Appr'd
Dec. 19, 73

I-205
COLUMBIA RIVER BRIDGE
PEDESTRIAN-BICYCLE PATH
SOUTH ACCESS RAMP
DECEMBER 1973

SCHEME J

Sverdrup & Parcel and Assoc., Inc.



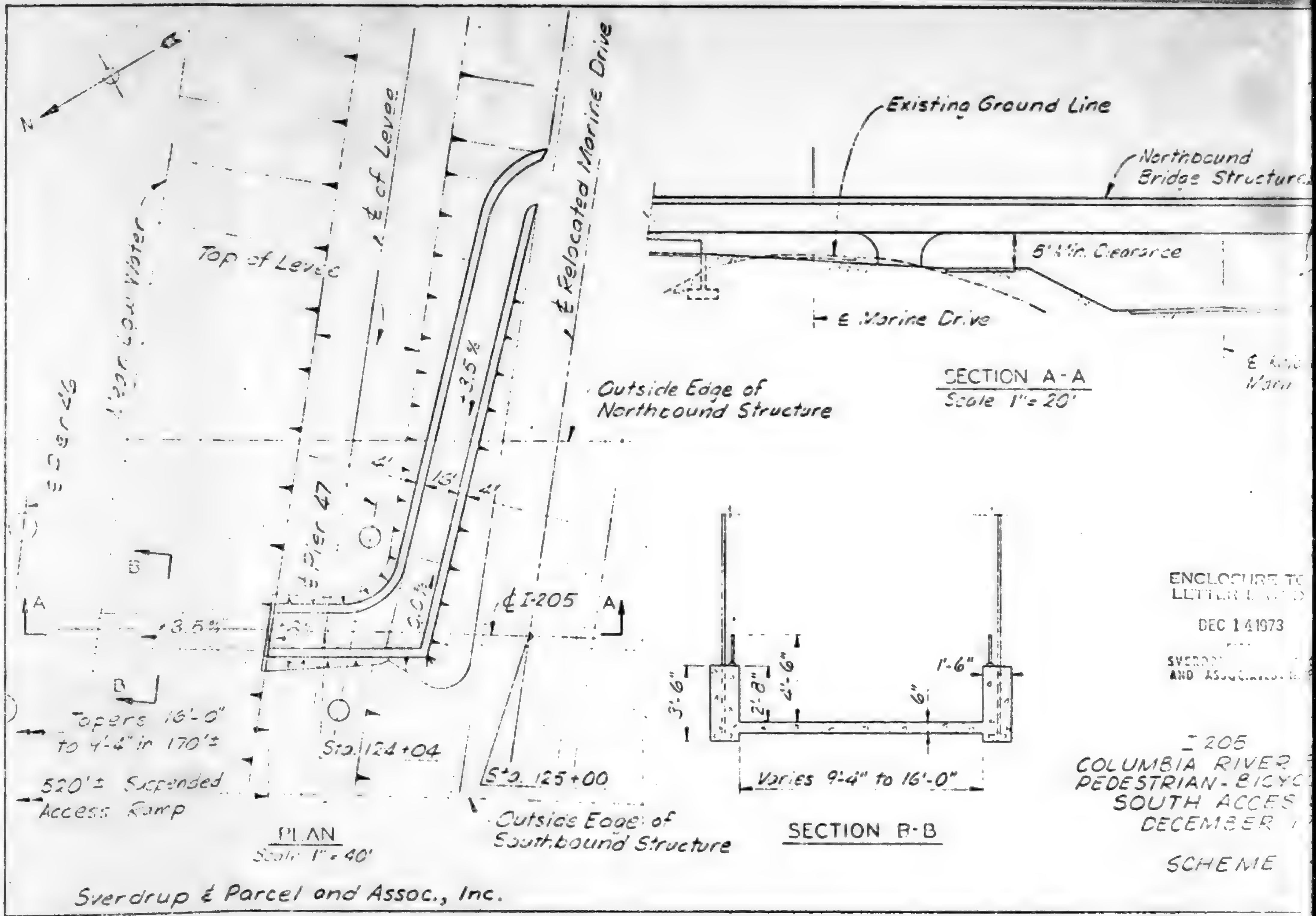
℄ of Levee
℄ Relocated Marine Dr.
Top of Levee
Low Water
℄ Pier 47
Outside Edge of Northbound Structure
50'R
B
12'
B
℄ I 205
A
3.5%
5.5%
0.0
50'R
12'
50'
Tapers 12' to 8'-0" to 9'-4" in 170'±
Suspended Ramp
Sta. 124+04
Sta. 125+00
Outside Edge of Southbound Structure
PLAN
Scale 1" = 40'
Existing Ground Line
Northbound Bridge Structure
Suspended Ramp
8.5' Min. Clearance
SECTION A-A
Scale 1" = 20'
Exis-ing Ground Line
Northbound Bridge Structure
4'-0" Shoulder
4'-0" Shoulder
Tapers 12' to 8'
SECTION B-B
Scale 1" = 20'
Parcel and Assoc., Inc.

I 205
COLUMBIA RIVER BRIDGE
PEDESTRIAN-BICYCLE PATH
SOUTH ACCESS RAMP
DECEMBER 1973

SCHEME J

Recommended Plan
Dec. 19, 73

ENCLOSURE TO
LETTER
DEC 1 4 1973
AND ASSOCIATES INC

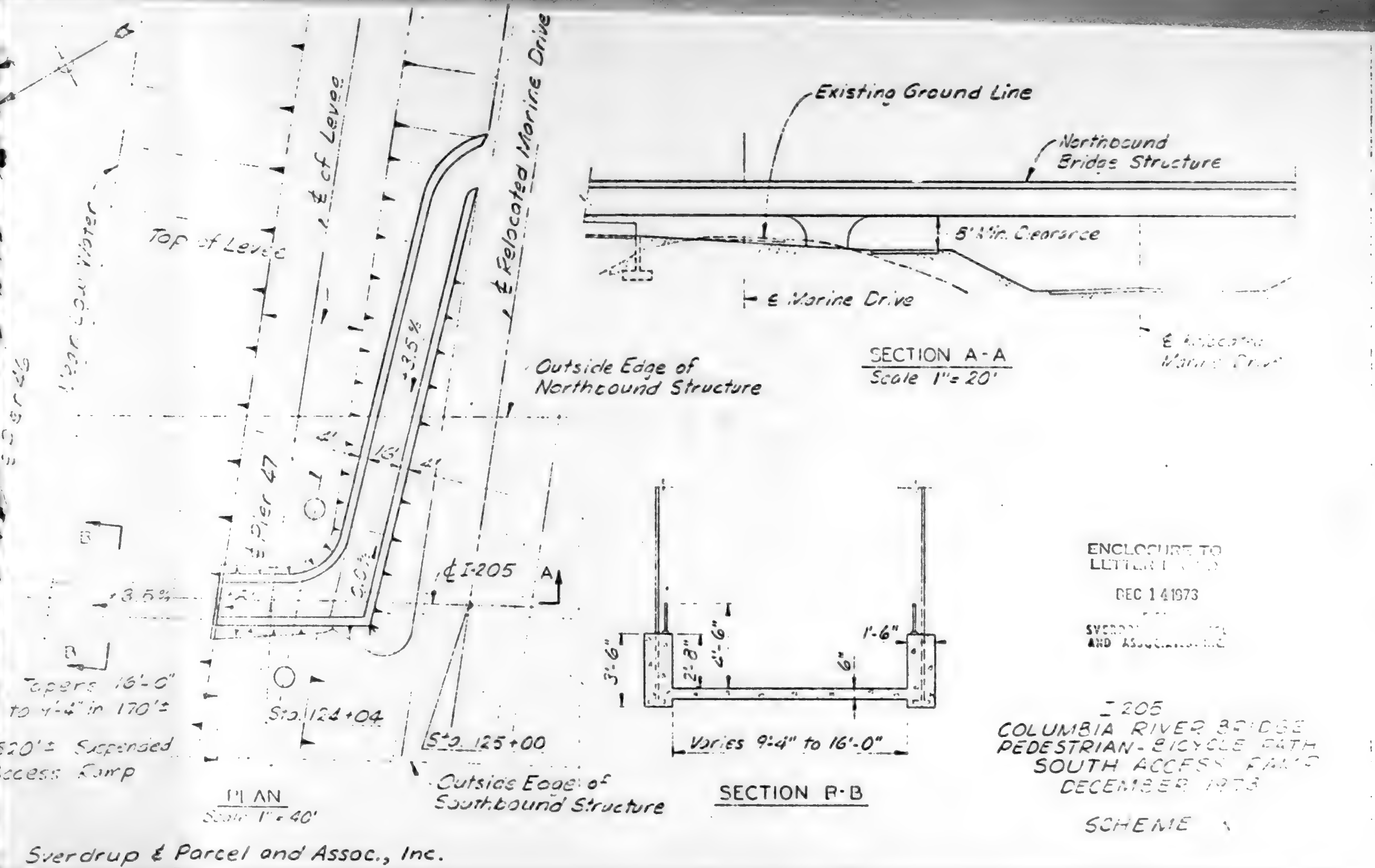

Existing Ground Line
Northbound Bridge Structure
5' Min. Clearance
℄ Marine Drive
SECTION A-A
Scale 1"= 20'
℄ of Levee
℄ Relocated Marine Drive
Top of Levee
Mean Low Water
℄ Pier 46
℄ Pier 47
±3.5%
4'
16'
4'
0.0%
±3.5%
Outside Edge of Northbound Structure
℄ I-205
A
A
B
B
Tapers 16'-0" to 9'-4" in 170'±
520'± Suspended Access Ramp
Sta. 124+04
Sta. 125+00
Outside Edge of Southbound Structure
PLAN
Scale 1"= 40'
3'-6"
2'-8"
4'-6"
6"
1'-6"
Varies 9'-4" to 16'-0"
SECTION B-B

Sverdrup & Parcel and Assoc., Inc.

ENCLOSURE TO
LETTER
DEC 14 1973
SVER
AND AS

I 205
COLUMBIA RIVER
PEDESTRIAN-BICYC
SOUTH ACCES
DECEMBER

SCHEME

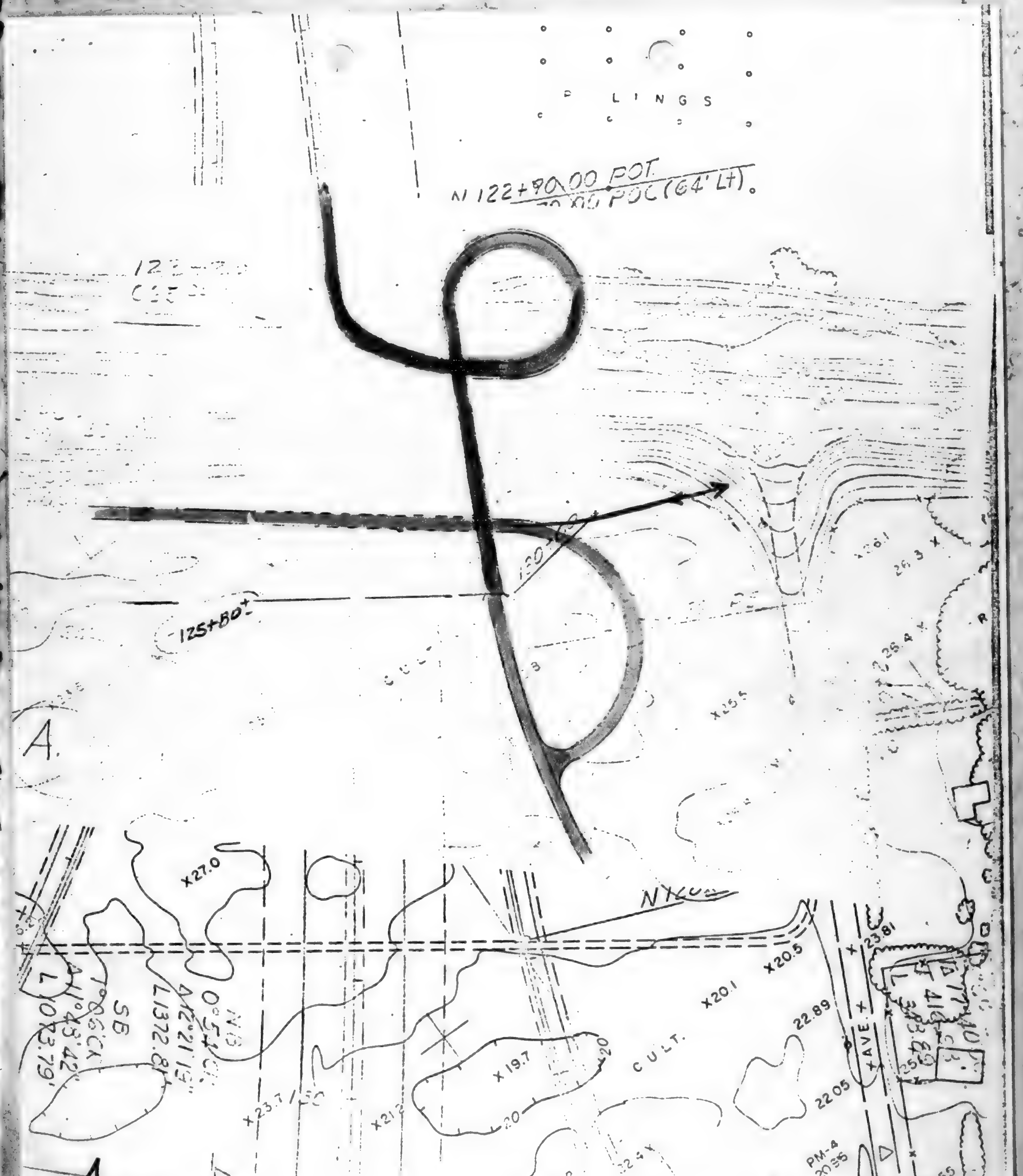

Mean Low Water
Top of Levee
℄ of Levee
℄ Relocated Marine Drive
℄ Pier 47
3.5%
3.5%
0.0%
4'
13'
4'
Outside Edge of Northbound Structure
℄ I-205
A
B
B
Tapers 16'-0" to 9'-4" in 170'±
520'± Suspended Access Ramp
Sta. 124+04
Sta. 125+00
Outside Edge of Southbound Structure
PLAN
Scale 1" = 40'
Existing Ground Line
Northbound Bridge Structure
5' Min. Clearance
℄ Marine Drive
℄ Relocated Marine Drive
SECTION A-A
Scale 1" = 20'
3'-6"
2'-8"
4'-6"
6"
1'-6"
Varies 9'-4" to 16'-0"
SECTION B-B

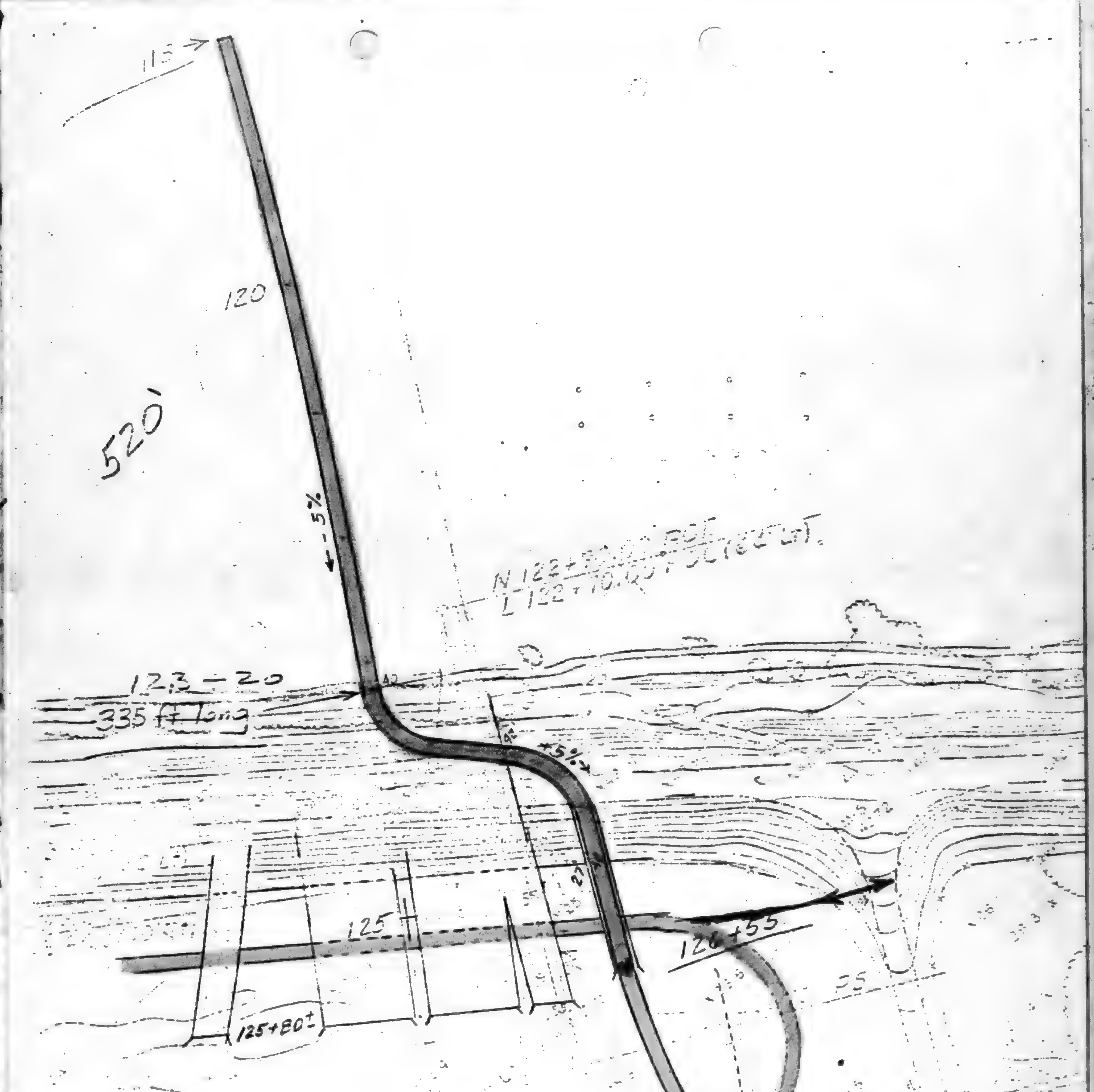
ENCLOSURE TO
LETTER [illegible]
DEC 14 1973
SVERDRUP [illegible]
AND ASSOCIATES, INC.

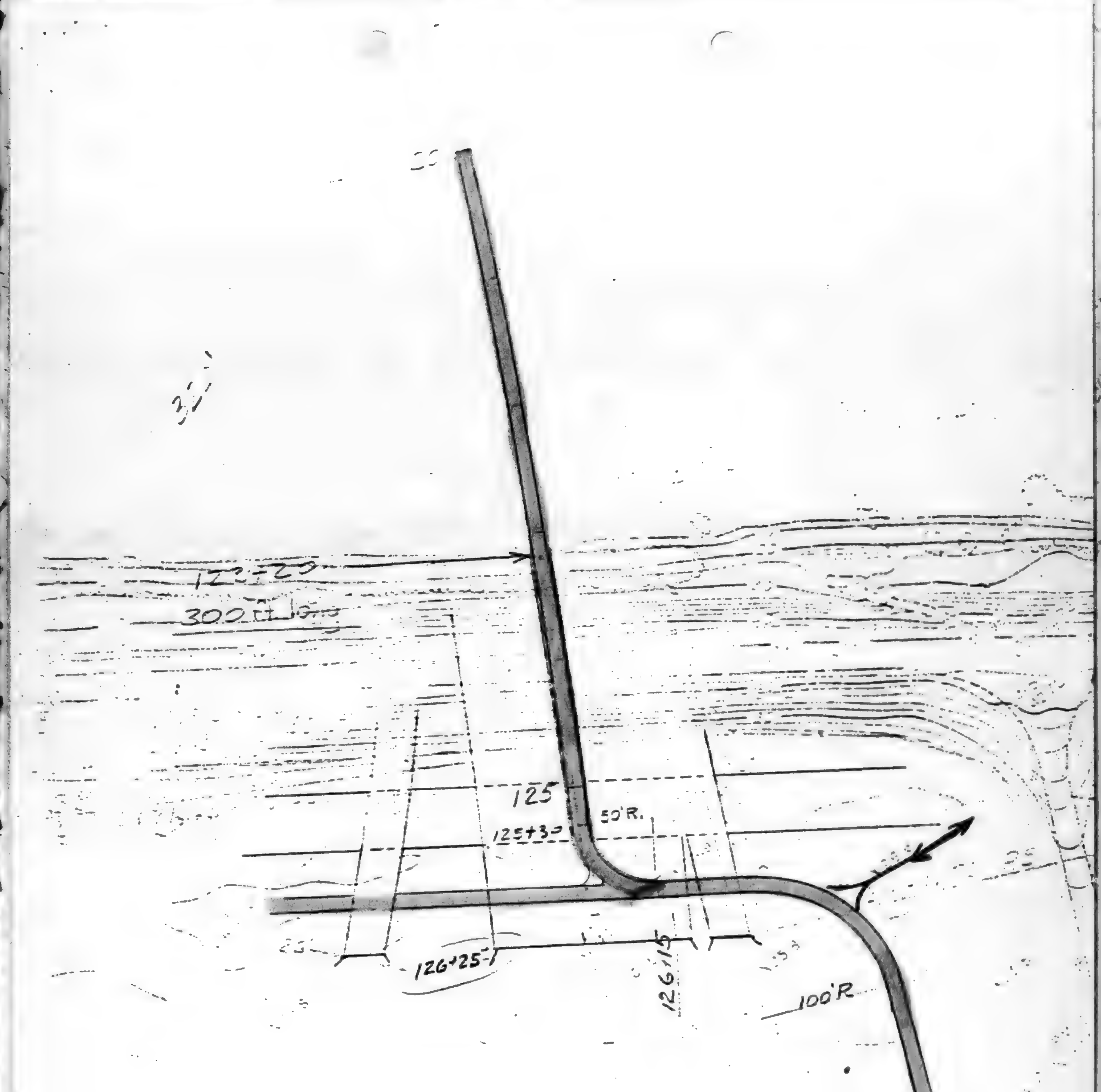
I-205
COLUMBIA RIVER BRIDGE
PEDESTRIAN-BICYCLE PATH
SOUTH ACCESS RAMP
DECEMBER 1973

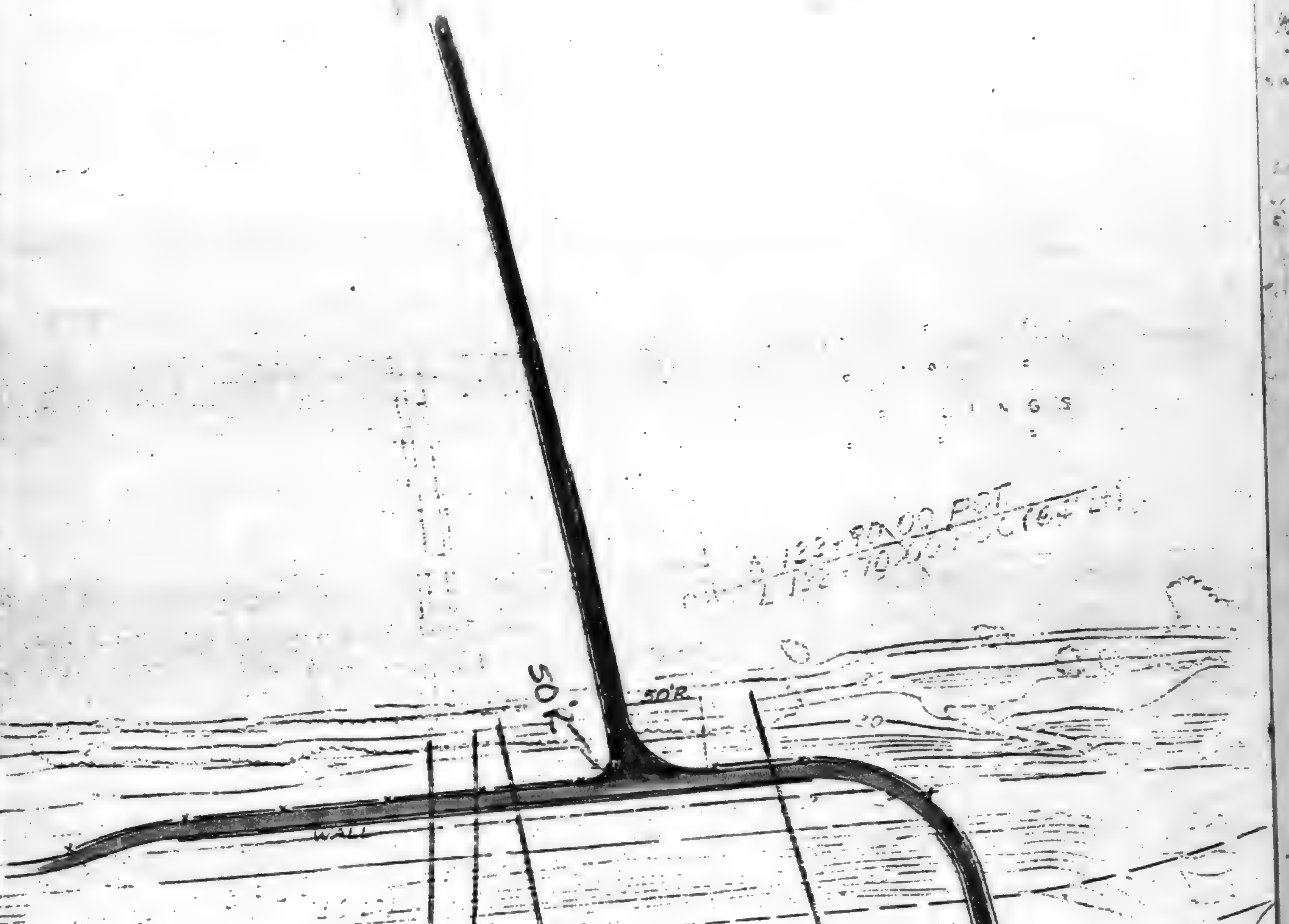
SCHEME

Sverdrup & Parcel and Assoc., Inc.

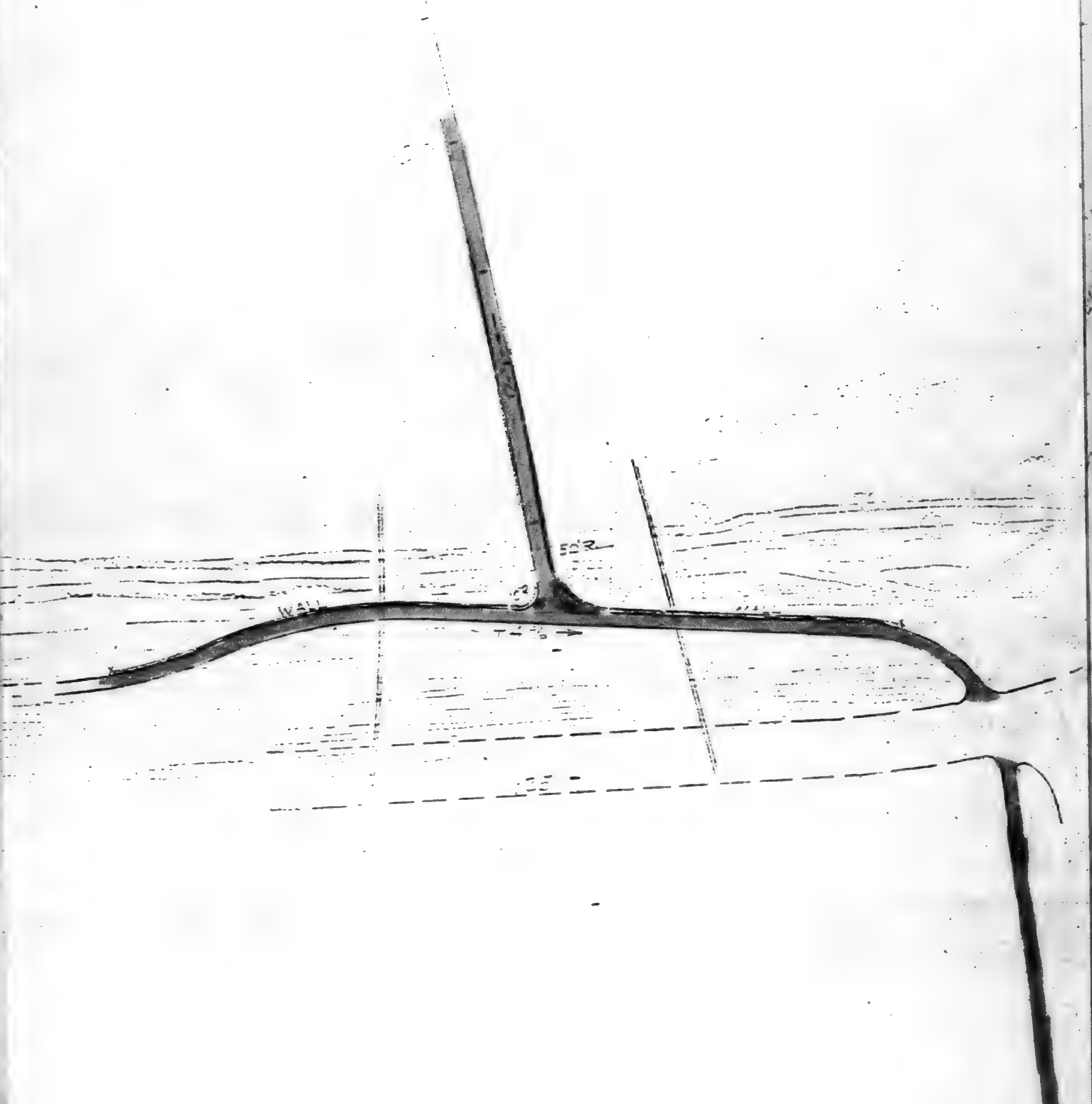

LINGS
N 122+90.00 POT
70.00 POC (64' Lt)
125+80±
X27.0
NYCUS
X20.5
X20.1
23.81
22.89
22.05
AVE
CULT.
X19.7
20
X23.7
X21.2
X22.2
22.4X
FIELD
PM-4
2036
20.55
26.3 X
26.4 X
X25.5
R
SB
L1372.81'
Δ12°21'15"
L1073.79'
Δ11°43'42"
A.
A.


115
120
520'
← -5%
123 - 20
335 ft long
+5% →
125
126+55
125+80±
B.

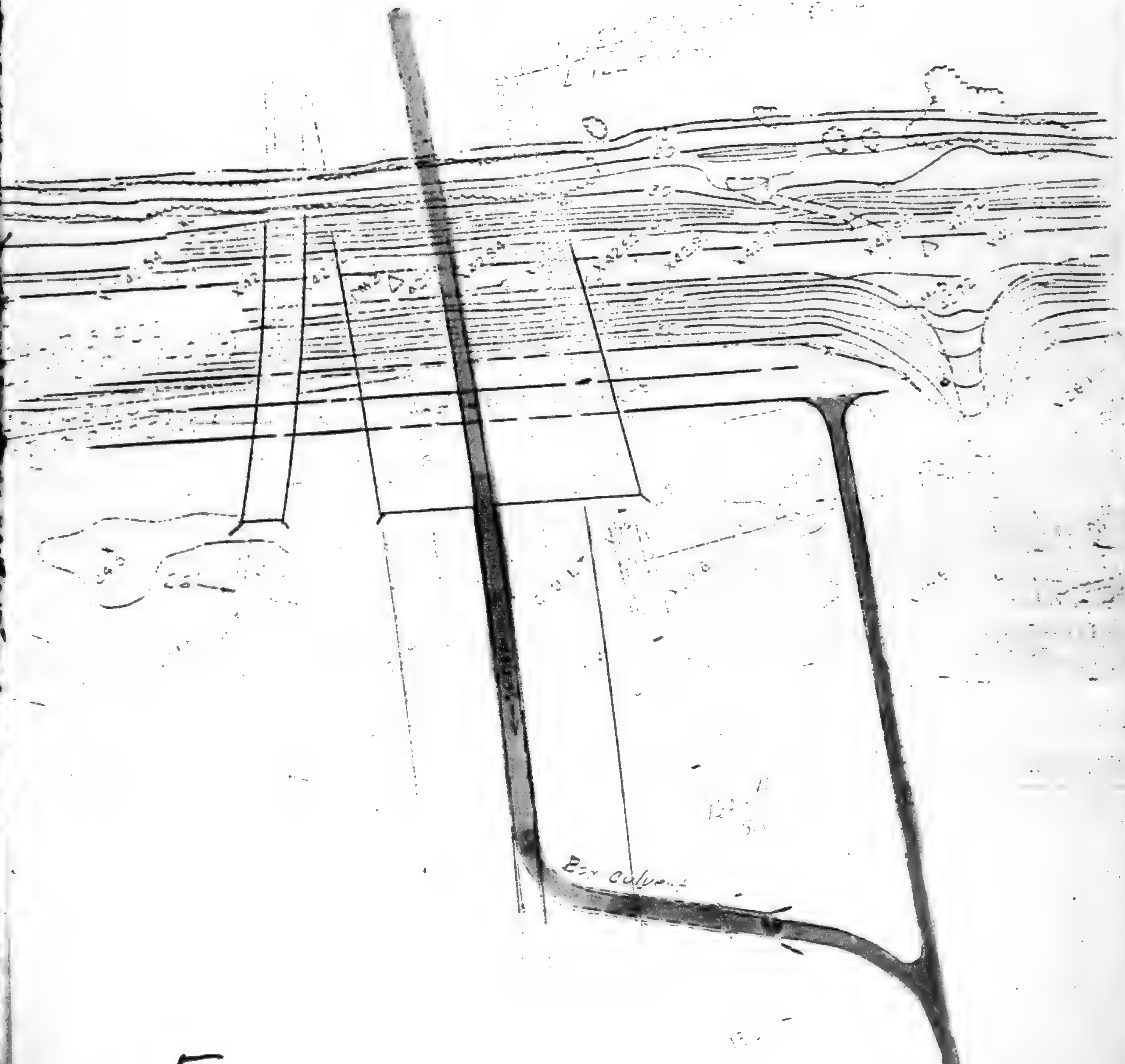

123+20
300 ft. lg.
125
50'R.
125+30
126+25
126+15
100'R
C


50'R
50'R
WALL

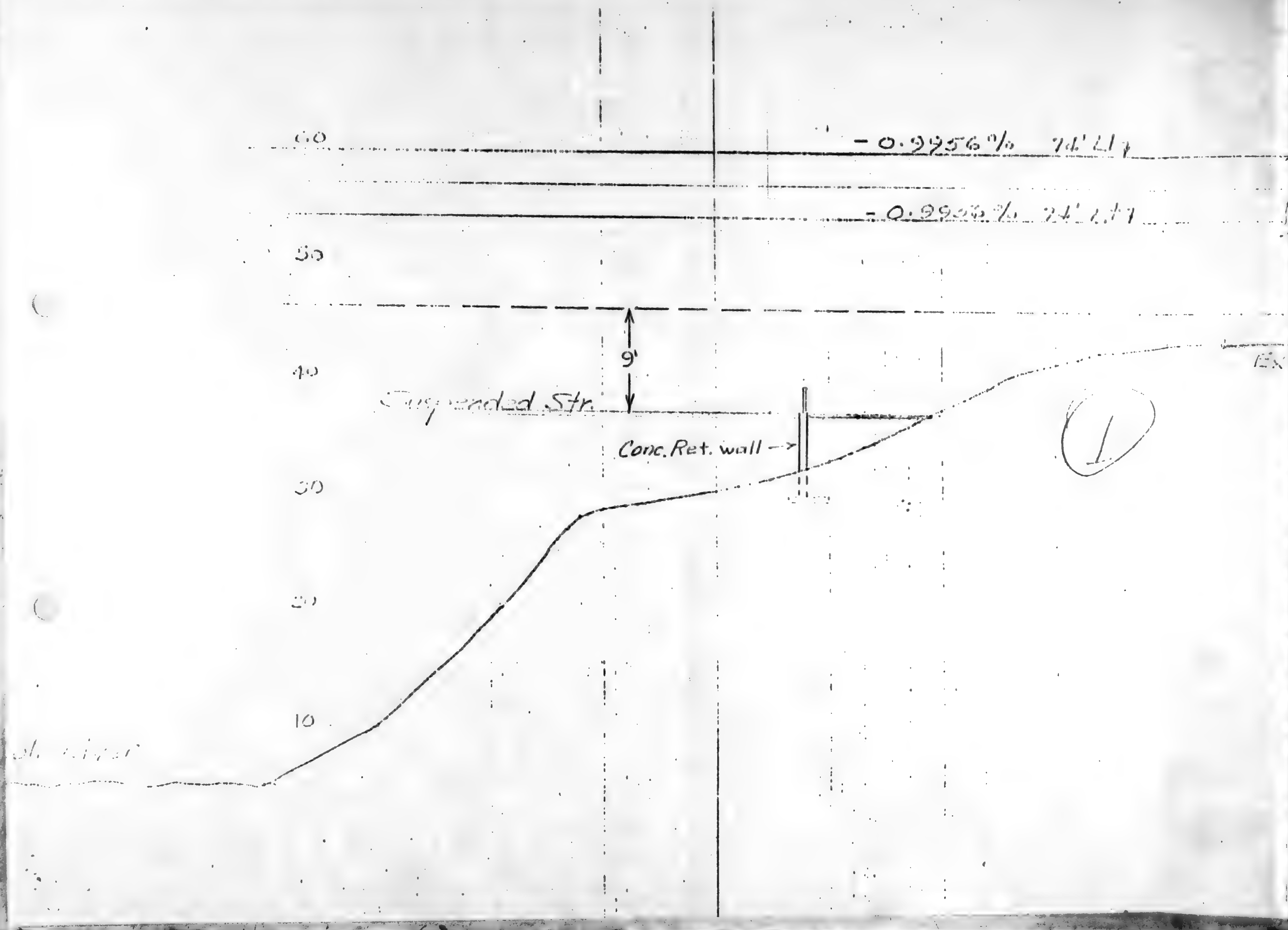
D.



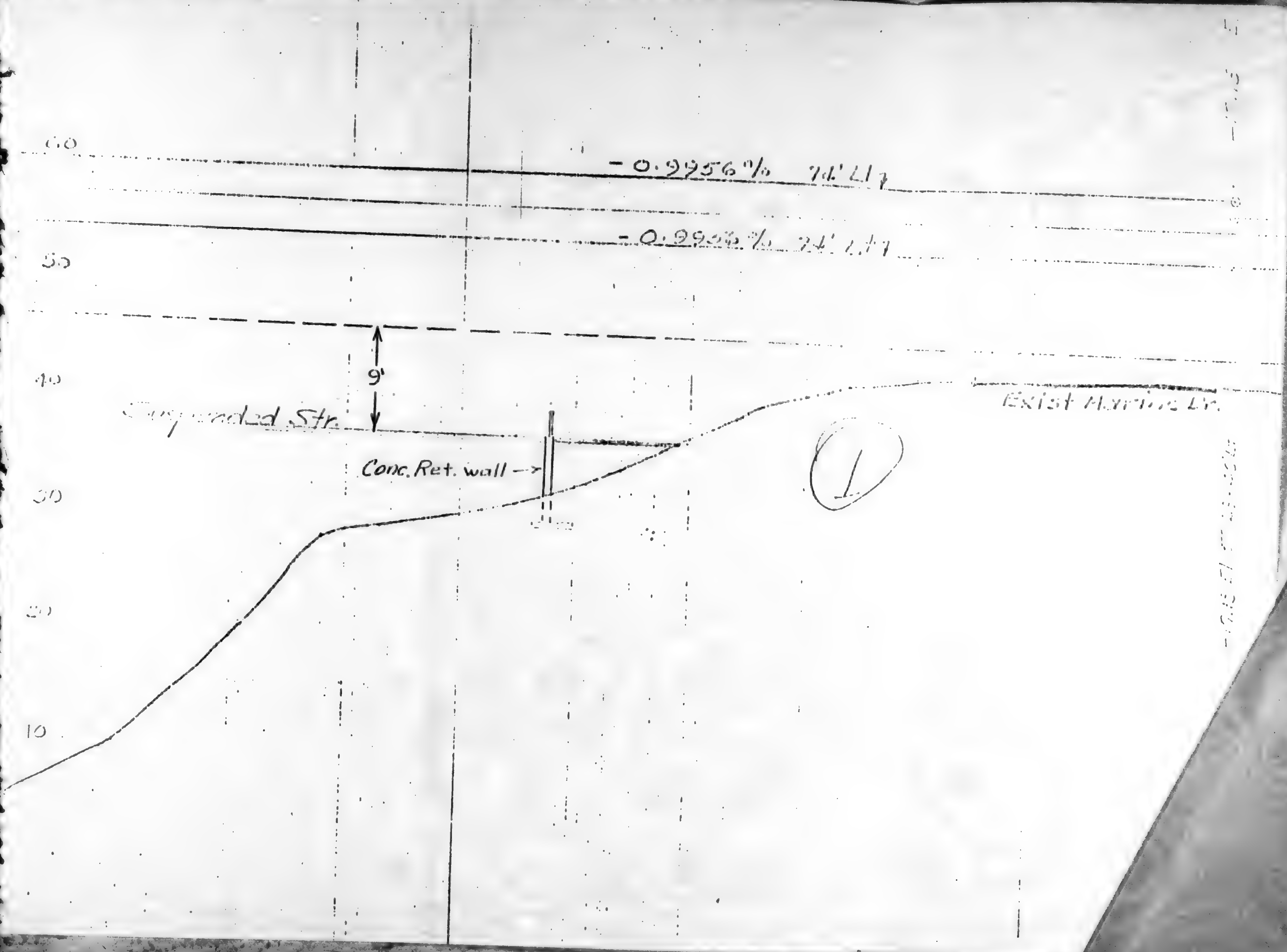
E.

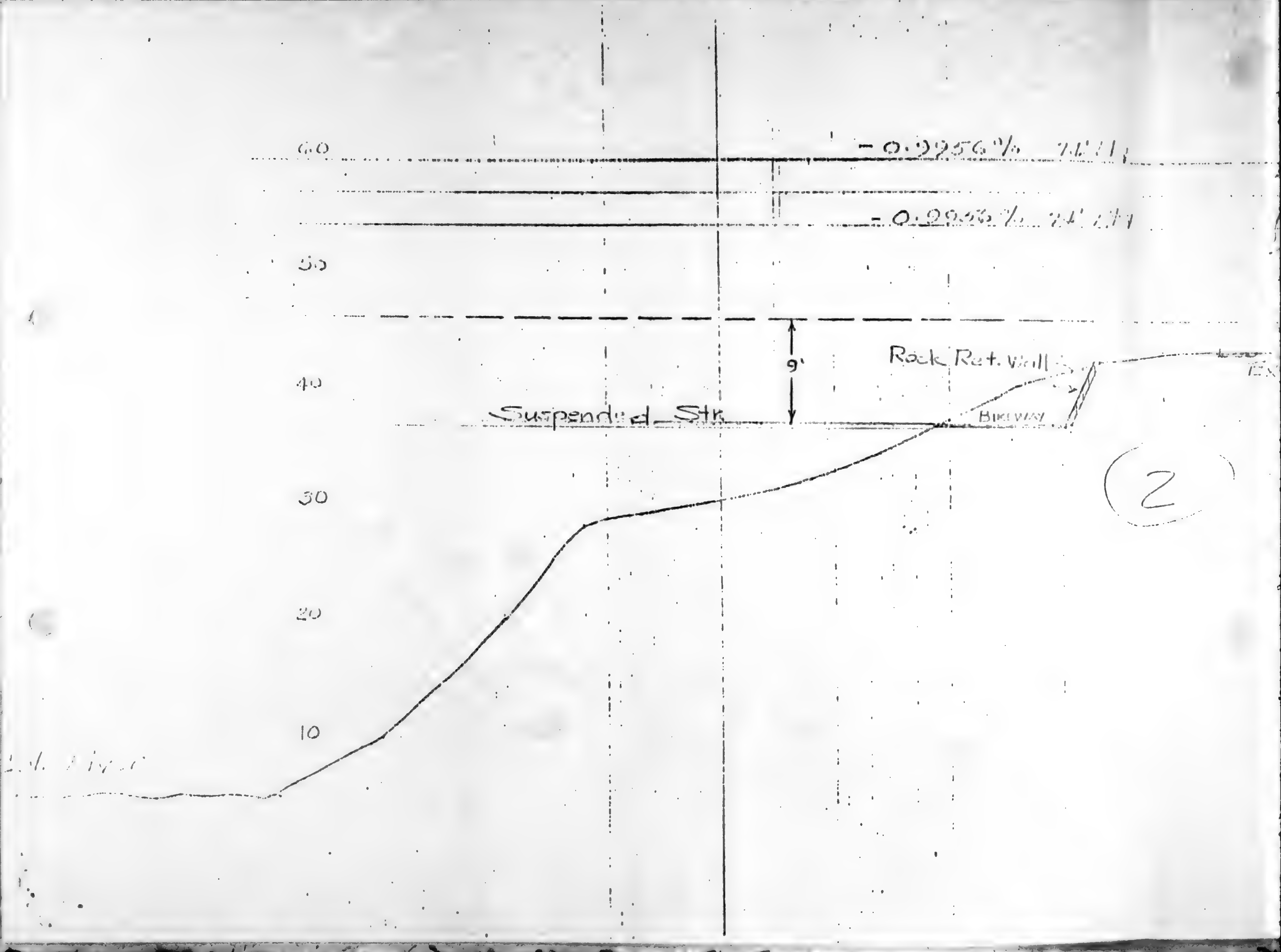

Box Culvert

F.

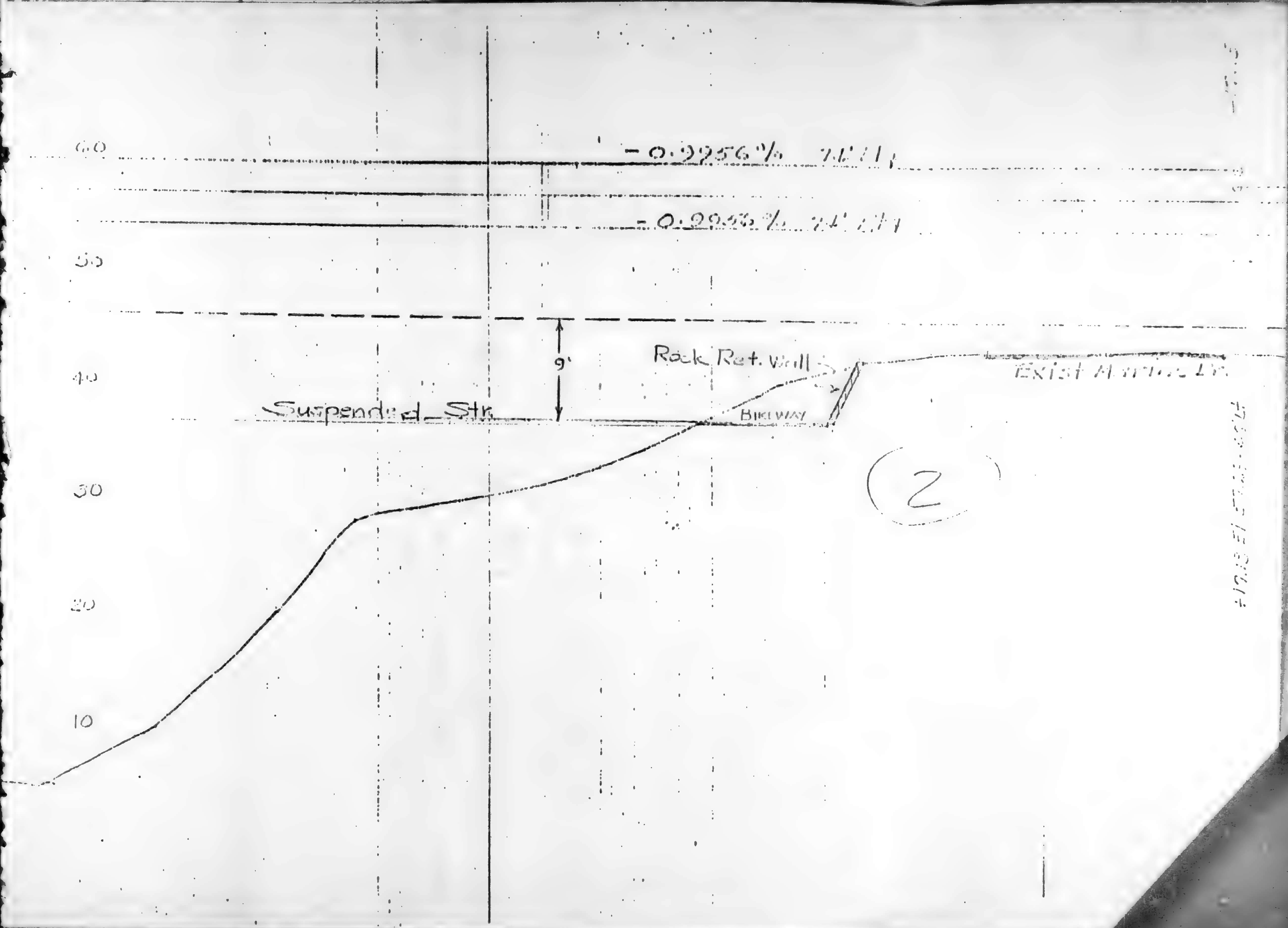

60
-0.9956% 74' Lt
-0.9956% 74' Rt
50
9'
40
Suspended Str.
Conc. Ret. wall
30
20
10
Ex

(1)


-0.9956% 24' Lt
-0.9956% 24' Lt
Expanded Str.
Conc. Ret. wall
Exist Marine Dr.



- 0.9956%
- 0.9986%
60
50
40
30
20
10
9'
Rock Ret. Wall
Suspended Str.
Bikeway
(2)


60
50
40
30
20
10
-0.9956% [illegible]
-0.9956% [illegible]
9'
Rock Ret. Wall
Suspended Str.
Bikeway
Exist Marine Dr.
+19.13 El 57+25

②

8905
Bikeway

**OREGON STATE**
**HIGHWAY DIVISION**

HIGHWAY BUILDING • SALEM, OREGON • 97310

TOM McCALL
GOVERNOR

F. B. KLABOE
Administrator of Highways

December 11, 1973

Mr. R. Jack Allen, P.E.
Sverdrup & Parcel and Associates, Inc.
P O Box 369
Bellevue, Washington 98004

NOTED
E. S. HUNTER

Dear Mr. Allen:

I-205 Columbia River Bridge
Bridge 9555
North Access Ramp Pedestrian Bicycle Path

We are enclosing a copy of the suggestions of our Location Section concerning the subject ramp. In addition, we are enclosing a plan and elevation of Scheme G from the State of Washington that was inadvertently left out of our letter of December 10.

It is apparent that all agencies involved favor Scheme G but are of the opinion that the ramp width of 16 feet may be reduced.

All facets of the pedestrian bicycle path will be open for discussion at our scheduled meeting of December 20.

Very truly yours,

ORIGINAL SIGNED
WALTER J. HART
Walter J. Hart
Bridge Engineer

PMO/ag
Encls.

cc E. S. Hunter
G. H. Andrews w/encl.
FHWA w/encl.
R. N. Bothman w/encl.

RECEIVED
DEC 11 1973
OFFICE OF
ASSISTANT STATE HIGHWAY ENGINEER

8905

SP Form FHWA 121 (Rev. 5-73)

8

**UNITED STATES GOVERNMENT**

# *Memorandum*

**DEPARTMENT OF TRANSPORTATION**
**FEDERAL HIGHWAY ADMINISTRATION**
Box 300
Salem OR 97308

DATE: November 21, 1973

In reply refer to: 10-35.7

SUBJECT: Oregon Project I-205-7(2)302
Columbia River Bridge
Pedestrian Bike Path Access SR-14

FROM : G. L. Green, Division Engineer

TO : Mr. F. B. Klaboe, Administrator & State Highway Engineer
Salem, Oregon

We concur with the consultant's recommendation of Scheme G for the north access ramp to the bike path on the Columbia River Bridge. It is recommended, however, that the path width be narrowed from 24 feet to 12 feet. We believe a 12-foot wide access ramp is adequate for safe operation of bicyclists and any pedestrians.

For G. L. Green

NOTED
E. S. HUNTER

11-26-73
Copy to Wolfe
Hart
Versteeg
Bothman

RECEIVED
STATE HWY ENGR

NOV 23 '73

REFER TO
Hunter

FOR

| Info | Inves | R/D | D/R | Sign | [illegible] | File |
|---|---|---|---|---|---|---|
|  |  |  |  |  |  |  |

cy all

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NOV 26 1973
OFFICE OF
ASSISTANT STATE HIGHWAY ENGINEER

8905
Bikeway

8

**OREGON STATE**
**HIGHWAY DIVISION**

HIGHWAY BUILDING • SALEM, OREGON • 97310

TOM McCALL
GOVERNOR

**F. B. Klaboe**
Administrator of Highways

November 8, 1973

Mr. Jack Allen, P.E.
Sverdrup & Parcel and Associates, Inc.
P. O. Box 369
Bellevue, WA 98004

NOTED
E. S. HUNTER

Dear Mr. Allen:

Columbia River (I-205) Bridge
Bridge No. 9555
Bike Path Details

We are forwarding a letter received from the Federal Highway Administration with their comments on the bike path details submitted with your letter of September 6, 1973. Please reply through this office to their Item No. 2.

We are sure that the difference in rail heights referred to was a drafting error; however, we would like to inform you now that our new standard pedestrian rail height is 48 inches and this height should be used for both rails.

Please keep the FHWA suggestions in mind along with those listed in our letter of October 22, 1973 when submitting further bike path details.

Very truly yours,

HAR
Walter J. Hart
Bridge Engineer

PMO:dh
Attachment

cc E. S. Hunter
W. M. Foster /w/ attach.
R. L. Carroll /w/ attach.
FHWA

RECEIVED
NOV 13 1973
OFFICE OF
ASSISTANT STATE HIGHWAY ENGINEER

8165

(REV. 5-7

UNITED STATES GOVERNMENT

*Memorandum*

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
Box 300
Salem OR 97308

DATE: November 2, 1973

In reply refer to: 10-35.7

SUBJECT: Oregon Project I-205-7(2)302
Columbia River Bridge Bike Path

FROM : G. L. Green, Division Engineer

TO : Mr. F. B. Klaboe, Administrator & State Highway Engineer
Salem, Oregon

Below are comments from our Region and Washington offices on the Bridge Bike Path. Please review and forward this consideration to the consultant. We would appreciate a reply on Item 2.

1. The proposed widening of the path from 8'4" between parapets to 9'4" to allow space for light supports and better width for maintenance vehicles is approved.

2. Since the median parapets are mounted with a railing, presumably for cyclists, we question the necessity of haunching the roadway soffit to provide for the seat of the precast slab. We question also why these railings are of different heights as shown on the "cross section details."

3. We suggest a waterproof joint or lip on the slab be provided to avoid possible entrapment of water and debris, and difficulties in maintenance of the expansion joint.

NOTED
A. E. JOHNSON

For G. L. Green

RECEIVED
STATE HWY ENGR
NOV 5 '73
REFER TO
FOR
Info | Inves | R/D | D/R | Sign | Act

Hart - Pls reply

ESN

11-7-73
original to Hart
to answer

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NOV 6 1973
OFFICE OF
ASSISTANT STATE HIGHWAY ENGINEER

8905
Bikeway

4

October 22, 1973

Mr. R. D. Bane, P.E.
Assistant Vice President
Sverdrup & Parcel and Associates, Inc.
P. O. Box 369
Bellevue, Washington 98004

Dear Mr. Bane:

Columbia River (I-205) Bridge
Estimated Costs and Time Delay
for Bike Path

We have studied the additional engineering costs for redesigning and adding a bikeway to the subject structure as outlined in your letter dated September 13, 1973.

Before we approve and forward the costs to the Federal Highway Administration for their approval, it will be necessary to have a more detailed breakdown of these figures. The breakdown must detail the exact status of the design at the time the extension was proposed and the bikeway added and the amount of redesign required. Also please forward any other data which you feel will substantiate the figures submitted.

Very truly yours,

E. S. Hunter
Assistant State Highway Engineer

PMO:ag jf

bc:
F. B. Klaboe
A. E. Johnson
W. J. Hart
J. H. Versteeg
V. D. Wolfe

8905

Bikeway

October 22, 1973

Mr. R. D. Bane, P.E.
Assistant Vice President
Sverdrup & Parcel and Associates, Inc.
P. O. Box 369
Bellevue, Washington 98004

Dear Mr. Bane:

Columbia River (I-205) Bridge 9555
Bike Path Width

We have received approval of the 9'4" width for the bike path from the Federal Highway Administration. You are hereby instructed to proceed with the design on this basis.

Following are some of our comments and questions concerning the bike path details submitted with your letter dated September 6, 1973.

1. We recommend a one percent transverse grade to facilitate drainage.
2. We do not believe the expansion devise shown will fit in the eight-inch depth shown on Sheet 2.
3. Request details on proposed method of connecting panels. (Epoxy, dowels, et cetera)
4. Also require details for manholes and means for providing access to box girders from the bike path.
5. We are not completely satisfied with the full width grate shown on Sheet 3. Perhaps a system of rather closely spaced scuppers would be adequate. They could be incorporated with either an open or closed system. Adequacy for cleaning and prevention of blockage must be considered.

6. Perhaps the red shaded areas shown on Sheet 1 could be eliminated and the green area filled after placing the panel. This would greatly facilitate the erection.

In addition the following comments were received from the State of Washington and are included for your consideration.

1. Drains

   a. We concur with Oregon's requirement of one percent transverse slope.

   b. We have no way, with the given information, to review the actual adequacy of the drainage system. In order to do so we will need a valid capacity figure for the grate detail shown on Sheet 3 and also a proposed spacing for the gratings.

   c. Has it been assured at this time that drain water can be discharged directly over the water or land or must this discharge be carried off into a storm drain system?

   d. Care needs to be taken in the final design of the drain grate to insure that it is not dangerous to bicycle riders. Perhaps, with the one percent slope, a full width drain would not be needed.

2. Drop in Panels

   a. The fact that the panels must be dropped in on edge may increase installation cost.

   b. The detail on the right side of the sketch shows a block out for the precast panel. This block out would appear to weaken the barrier unless special reinforcement is to be provided in this detail.

c. We assume that in the most violent earthquake condition and assuming opposing motions in the two bridges the joint will not open to such an extent that the panel can fall through.

In regard to Washington's item 1c, it is our present thinking that drainage over the river will be allowed to fall free into the river while it may be necessary to carry drainage over some of the land portion.

If you have questions on any of the above, please do not hesitate to call on us.

Very truly yours,

E. S. Hunter
Assistant State Highway Engineer

Attachments

cc: G. H. Andrews
Richard Carroll

bc: F. B. Klaboe
A. E. Johnson
W. J. Hart
J. H. Versteeg
R. N. Bothman
P. M. Oakley

PMO:smd jf

JOB 3360 Columbia River Bridge

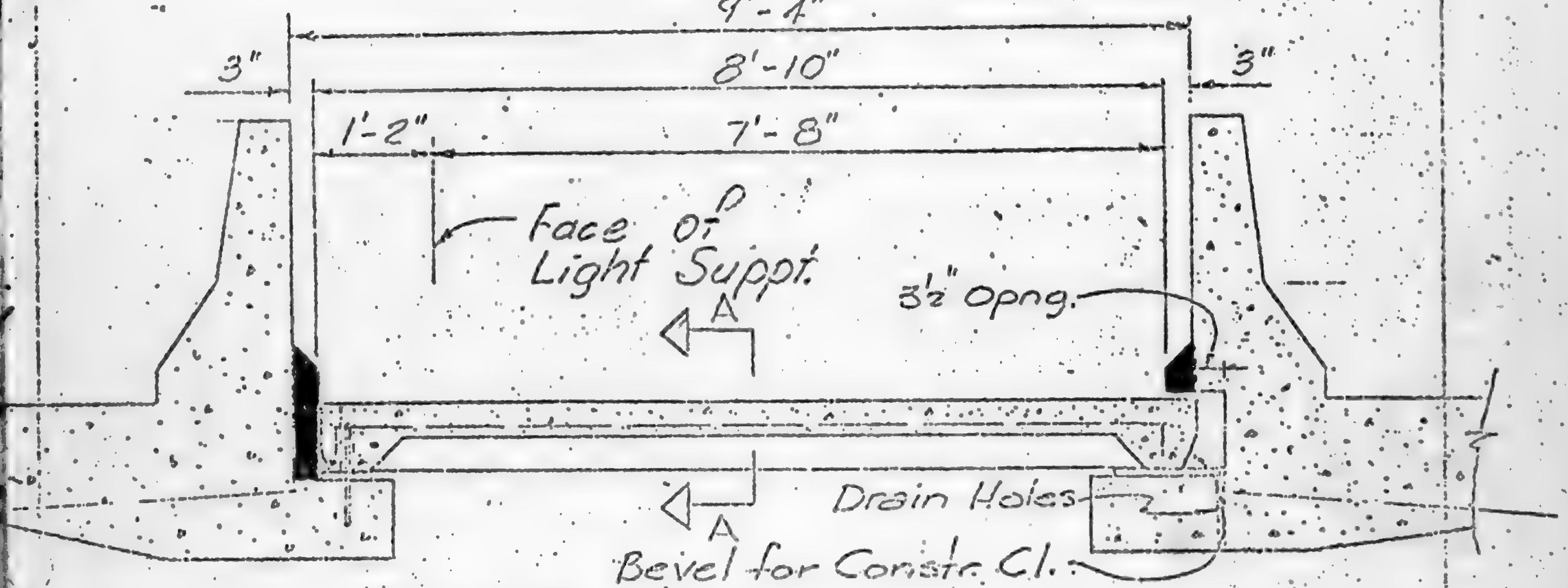
SHEET NO. 1 OF 3

DATE Aug. 1973

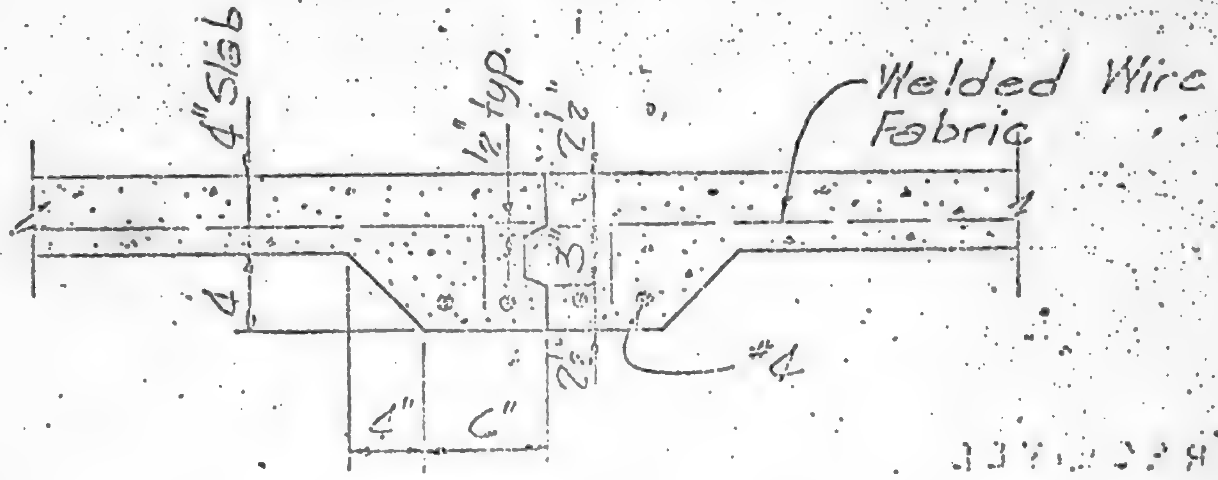
COMPUTATIONS FOR Bike Path

BY W.C.H. CHKD

Note: Panel Length = 10'-0"


9'-4"
3"
8'-10"
3"
1'-2"
7'-8"
Face of Light Suppt.
A
3½" Opng.
Drain Holes
A
Bevel for Constr. Cl.

TYP CROSS SECTION
PRECAST PATH


4" Slab
1½" typ
2½"
Welded Wire Fabric
4
3"
2½"
#4
4"
6"

SECTION A-A
JOINT BETWEEN PANELS

ENCLOSURE TO
LETTER DATED
SEP 6 1973
FROM
SVERDRUP & PARCEL

SVERDRUP & PARCEL

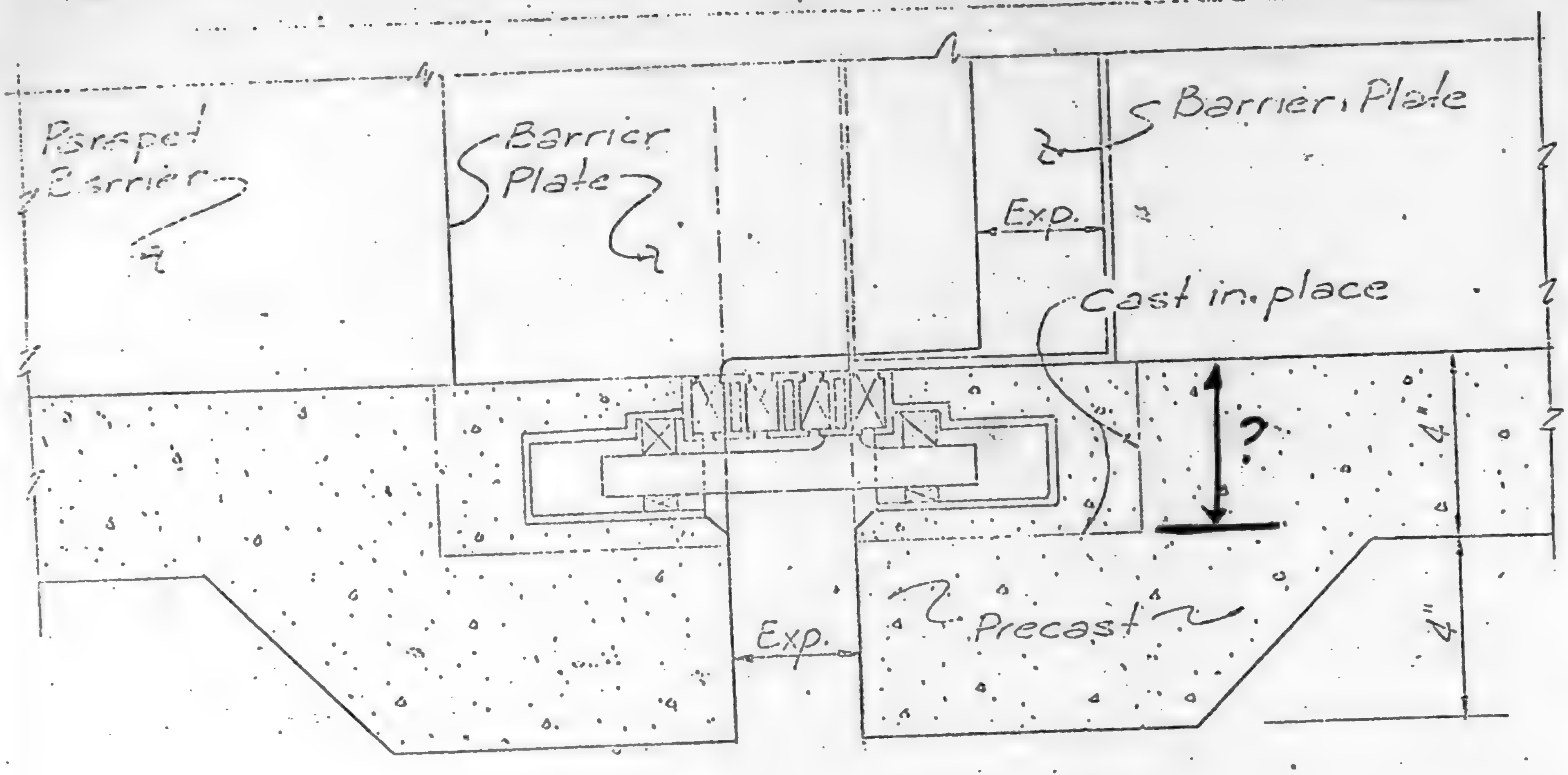
SHEET NO. 2 OF 3

JOB 3360 Columbia River

DATE AUG. 1973

COMPUTATIONS FOR Bike Path

BY W.C.H. CHKD



Parapet Barrier
Barrier Plate
Barrier Plate
Exp.
Cast in place
?
4"
4"
Exp.
Precast

TRANSVERSE BIKE PATH JOINT

@ HINGE

Note: Joint material to be designed for 4000 lbs vehicle or sidewalk load from A.A.S.H.O.

SVERDRUP & PARCEL

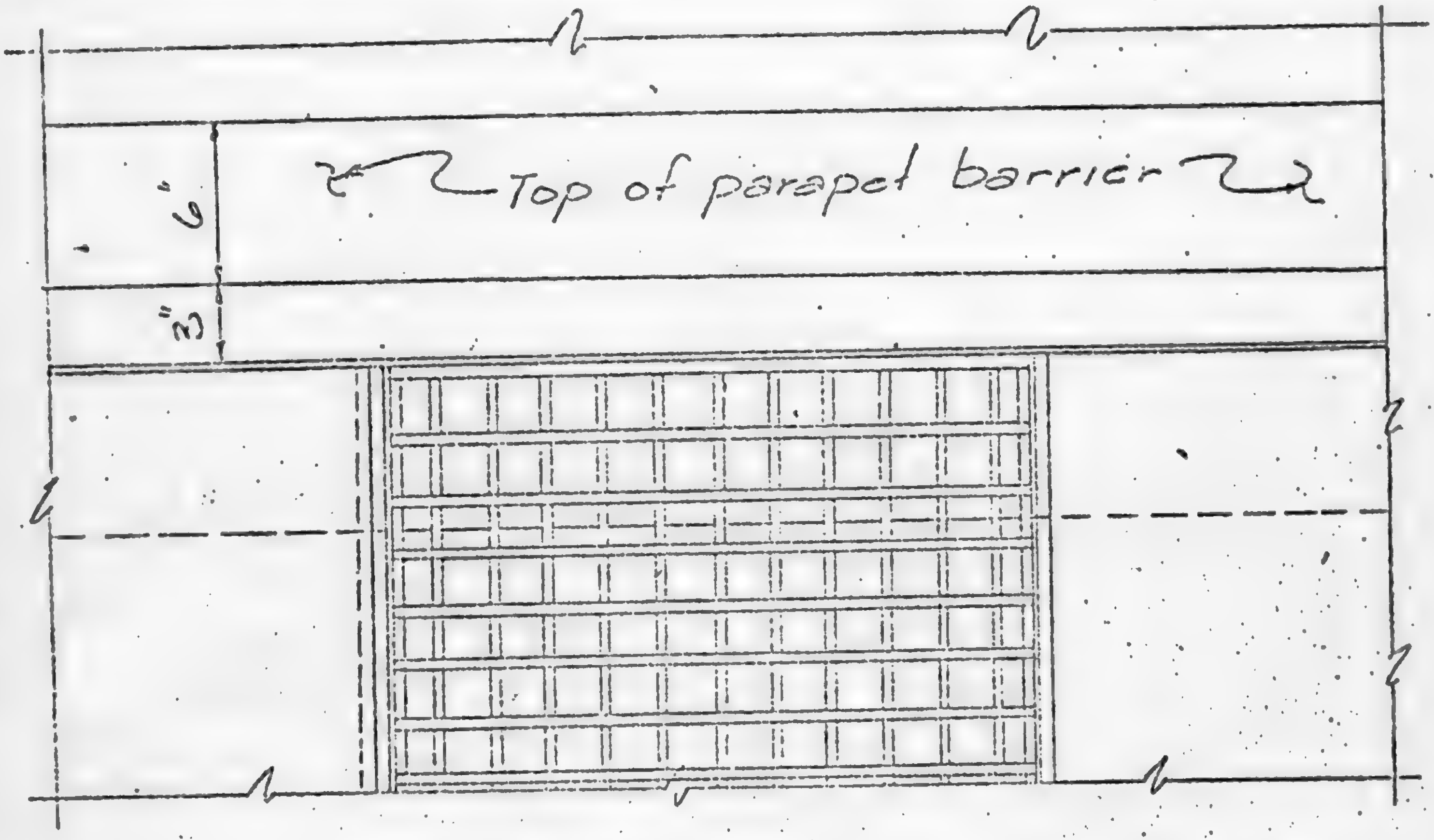
JOB 3360 Columbia River Br.

COMPUTATIONS FOR Bike Path

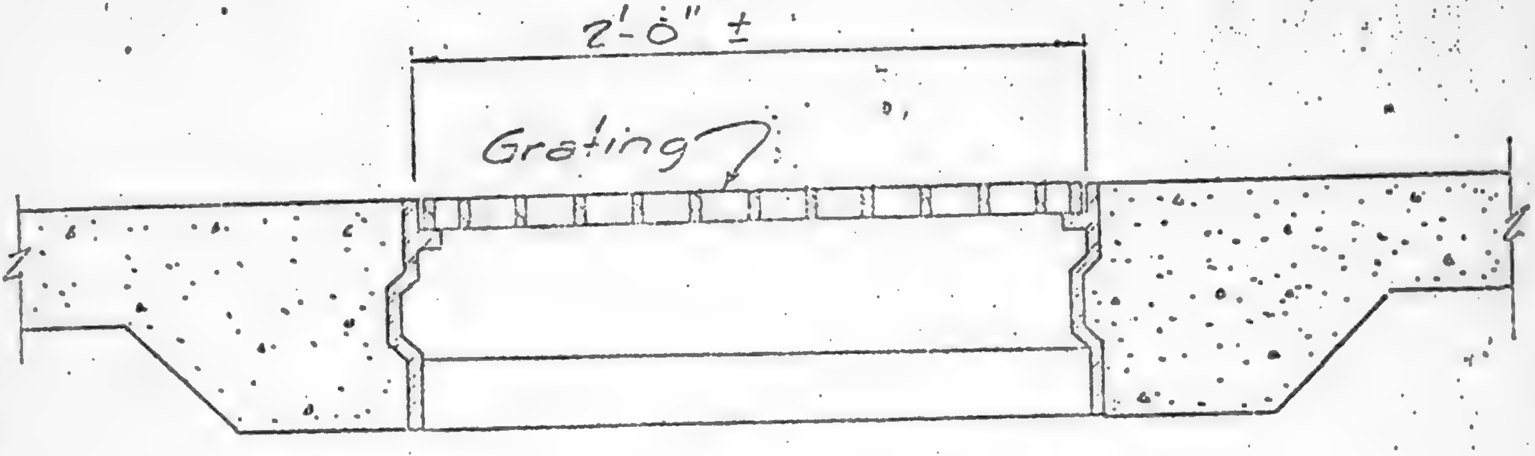
SHEET NO. 3 OF 3

DATE Aug. 1973

BY W.C.H. CHKD


Top of parapet barrier
6"
3"

## PLAN AT TYPICAL DRAIN GRATE



## SECTION THRU GRATE

Note: Grating extends full width of Bike Path.

8905
Bikeway

8

Form FHWA 121 (Rev. 7-72)

UNITED STATES GOVERNMENT
*Memorandum*

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
Box 300
Salem OR 97308

DATE: October 11, 1973

In reply refer to: 10-35.7

SUBJECT: Oregon Project I-205-7(2)302
Columbia River Bridge Bike Path

FROM : G. L. Green, Division Engineer

TO : Mr. F. B. Klaboe, Administrator & State Highway Engineer
Salem, Oregon
Attention: Walt Hart

Mr. Hart's letters of September 3 and October 2 request comments and approval of the 9'4" median area width. We have also Mr. Hart's October 5 memorandum to Mr. Schell on the increased cost estimate for the bike path.

We have reviewed this request with both our Washington and Regional office and find that the consultants request to increase the width to 9'4" in order to accommodate light poles and light-service vehicle access is acceptable and recommend that you proceed with the design.

for E J Walach
G. L. Green

10-15-73
cc
Young
Hart
Vanstrug
Wolfe

NOTED
A. E. JOHNSON

RECEIVED
STATE HWY ENGR
OCT 12 73
REFER TO
Hunter
FOR

| Info | Inves | R/D | D/R | Sign | Act | File |
|---|---|---|---|---|---|---|
|  |  |  |  |  | ✓ |  |

RECEIVED
OCT 15 1973
OFFICE OF
ASSISTANT STATE HIGHWAY ENGINEER

3905
Bikeway

**OREGON STATE
HIGHWAY DIVISION**

HIGHWAY BUILDING • SALEM, OREGON • 97310

TOM McCALL
GOVERNOR

F. B. Klaboe
Administrator of Highways

October 5, 1973

NOTED
E. S. HUNTER

RECEIVED
OCT 8 1973
OFFICE OF
ASSISTANT STATE HIGHWAY ENGINEER

TO Mr. H. A. Schell
Federal Highway Administration

WALTER J. HART

FROM Walter J. Hart
Bridge Engineer

SUBJECT Columbia River (I-205) Bridge
Bridge 9555
Bike Path Increased Width
Cost Estimate

Pursuant to your telephone inquiry, the consultant on this project provided the following cost data for the bike path on the original length (7,600') structure. Costs for both the original 8'-4" path and the proposed 9'-4" path are shown. The widened section is necessary to provide sufficient passage width at the light pole bases. Details of the widened section are shown on the drawing entitled "Cross Section Details - Sept. 1973" which was previously forwarded to you.

| | |
|---|---|
| 8'-4" wide bike path (1971 prices) incl. E & C | $2.3 M |
| Less E & C | .4 M |
| Cost of bike path (1971 prices) | $1.9 M |
| Inflation to '73 @ 9.6% = 24% = | .5 M |
| 1973 Construction cost - 8'-4" bike path | $2.4 M |
| Additional 1' width: | |
| Slab | .03 |
| Additional strengthening of box and structure | .08 |
| Change in detail<br>(Attaching bike path to structure) | - .29 |
| 1973 Construction cost - 9'-4" bike path | $2.22 M |

| | | |
|---|---|---|
| Brought forward | $2.22 | M |
| Additional 20% E & C | .44 | |
| 1973 Estimate of 9'-4" bike path (on 7,600' structure) | $2.66 | M |

If you have further questions, please don't hesitate to call.

RWE:dh

cc E. S. Hunter
T. G. Thompson

8905 -
Bikeway

2

FORM E-30

# OREGON STATE HIGHWAY DIVISION

INTER-DEPARTMENT CORRESPONDENCE

Salem, Oregon

**DATE** October 5, 1973

**TO** Memo to the Files

ORIGINAL SIGNED
R.W. ELLISON

**FROM** R. W. Ellison
Bridge Administration Engineer

RECEIVED
OCT 9 1973
OFFICE OF
ASSISTANT STATE HIGHWAY ENGINEER

**SUBJECT** Columbia River (I-205) Bridge
Bridge 9555
Bike path estimate

In answer to my telephone inquiry of this date to Jack Allen of Sverdrup & Parcel for updated bike path costs for this structure, I obtained the following:

For 7,600' structure (original length)

NOTED
E. S. HUNTER

| | |
|---|---|
| 8'-4" wide bike path (1971 prices) incl. E & C | $2.3 M |
| Less E & C | .4 M |
| Cost of bike path (1971 prices) | $1.9 M |
| Inflation to '73 @ 9.6% = 24% = | .5 M |
| 1973 Construction cost - 8'-4" bike path | $2.4 M |
| Additional 1' width: | |
| Slab | .03 |
| Additional strengthening of box and structure | .08 |
| Change in detail (Attaching bike path to structure) | - .29 |
| 1973 Construction cost - 9'-4" bike path | $2.22 M |
| Additional 20% E & C | .44 |
| 1973 Estimate of 9'-4" bike path (on 7,600' structure) | $2.66 M |

For 11,600' structure (includes 9,000' structural extension):

| | |
|---|---|
| 8'-4" bike path, 1971 price, incl. E & C | $3.4 M |
| Less E & C | .6 M |
| 1971 price 8'-4" bike path construction cost | $2.8 M |
| Inflation to Oct. 1973 (9.6% per year = 24%) | .7 M |
| 1973 price 8'-4" bike path construction cost | $3.5 M |
| Additional 1' widening (to 9'-4") | |
| Slab | $ .046 M |
| Strengthen box and substructure | .114 M |
| Change detail of attaching bike path to structure | - .45 M |
| 1973 price 9'-4" bike path construction cost | $3.21 M |
| 20% E & C | .64 |
| 1973 cost estimate of 9'-4" bike path on 11,600' structure | $3.85 M |

RWE:dh

cc Mr. Jack Allen
Mr. E. S. Hunter
Mr. T. G. Thompson

8905
Bikeway

**OREGON STATE**
**HIGHWAY DIVISION**

HIGHWAY BUILDING • SALEM, OREGON • 97310

TOM McCALL
GOVERNOR

F. B. Klaboe
Administrator of Highways

September 10, 1973

Mr. William Foster
Washington State Highway Dept.
Highway Administration Building
Olympia, Washington 98504

NOTED
E. S. HUNTER

Dear Mr. Foster:

Columbia River (I-205) Br.
Br. 9555
Cross Section Details (Bikeway)

For your information and comments we are enclosing two copies of a drawing from Sverdrup & Parcel and Associates, Inc.

We are recommending a one percent transverse slope for the bike path to allow for drainage. This can be built into the precast unit so it would have no effect on the profile grade lines.

Your prompt consideration and comments on these details would be appreciated to expedite the consultant's work.

Very truly yours,

ORIGINAL SIGNED
WALTER J. HART
Walter J. Hart
Bridge Engineer

PMO/ag

cc R. Carroll w/encl. (1)
H. A. Schell w/encl. (5)
J. H. Versteeg w/encl. (2)
E. S. Hunter
P. M. Oakley

RECEIVED
SEP 13 1973
OFFICE OF
ASSISTANT STATE HIGHWAY ENGINEER

8405
Bikeway

8

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WASHINGTON, D.C. 20590

JAN 28 1976

RECEIVED
STATE HWY ENGR
FEB 10 '76
REFER TO
FOR
Info Inves R/D D/R Sign Act File

IN REPLY REFER TO:
HNG-25

NOTED
E. S. HUNTER

Mr. Robert Scotton
Chairman for the Citizens
  Bicycle Advisory Committee
Portland Bureau of Planning
424 SW. Main
Portland, Oregon 97204

Dear Mr. Scotton:

This is in further response to your November 20, 1975, letter to Senator Bob Packwood regarding the design of the combined bicycle and pedestrian pathway on the I-205 bridge over the Columbia River. Our field office has furnished us the information we requested in our December 24, 1975, letter.

Our field office informs us that since your letter to Senator Packwood, representatives of the Citizens Bicycle Advisory Committee, of which you are Chairman, have met with the State and resolved the items mentioned in your letter. An understanding has been reached by which your committee has agreed to work closely with the State in the bikeway extension south of the bridge.

431
431A

Your concern with respect to the median location for the bikeway was also a concern of the States of Washington and Oregon and the consultant developing the project. The median location was selected because of economics ($1.5 million cheaper than a two-way path located on one side of the structure) and multiple use (maintenance, inspection, emergency aid). When this decision was made a major revision in the consultant design contract was required to place the additional facility between the separate super-structures ($384,220 additional cost).

Your other concern was access to Government Island for bicyclists. No positive action has ever been initiated for access to the island which is owned by the Port of Portland. There are no proposed bike

cy- Bothmann
Dengin
Hall Hank
2-10-76

trails planned on the island. In fact, there are some wildlife supporters and others who are not in favor of access other than by boat. The Columbia Region Association of Government (CRAG) has not requested such access.

If we can be of further assistance please let us know.

Sincerely yours,

/s/ H. A. Lindberg

H. A. Lindberg
Associate Administrator for
Engineering and Traffic Operations

WA 121 (Rev. 5-73)

UNITED STATES GOVERNMENT
*Memorandum*

DEPARTME..T OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
Box 300
Salem OR 97308

DATE: January 12, 1976

In reply refer to: 1041BR/INQ-574
(Robt Scotton, Portland, to Sen Packwood, 11-20-75)

SUBJECT: Oregon Project I-205-1(2)303
Congressional Inquiry - Columbia River Bridge
Bike Path (Ltr, 12-24-75, Lindberg to Scotton)

FROM : G. L. Green, Division Administrator

NOTED
E. S. HUNTER

TO : Mr. H. A. Lindberg, Associate Administrator for
Engineering and Traffic Operations
Washington, D.C. HNG-25

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Info

Mr. Scotton's submittal, dated November 20, 1975, to Senator Packwood described several objections to the proposed Columbia River Bridge Bike Path location across the structure. Representatives of the Citizens Bicycle Advisory Committee (Mr. Scotton is the Chairman) have since met with the State (December 16) and resolved the items mentioned in Senator Packwood's letter (see Klaboe's letter to Packwood, dated January 5, 1976). They will work closely with the State in the bikeway extension south of the bridge. In order to address the comments in Mr. Scotton's letter, we offer the following:

cy Bothman
Woelfe
Versteeg
1-19-76

He indicated concern about the Citizens Bicycle Advisory Committee input into the development of the facility. The Citizens Bicycle Advisory Committee also had input in 1973 as shown by their letter to James McClure, Bicycle Engineer - Oregon State Highway Division, objecting to the path width. The State's letter, dated January 2, 1974, to Sandy Jernstedt and Hans Kaplick (Co-Chairpersons, Bicycle Advisory Committee) submitted a bridge bike path cross section indicating an increase in width to 9' 4" and explaining why additional width could not be obtained. We also find, in checking our records, that the Bike Path Task Force of the city of Portland (appointed by the Mayor), Rose City - Wheelmen, Regional Planning Council of Clark County, the Multnomah County Planning Commission, and Field Coordinator for Governor Tom McCall (Herbert L. Hearst) all had input into developing the bike path located on this major crossing.

Mr. Scotton's concern with respect to the median location was also a concern of the States of Washington and Oregon and the consultant developing the project. However, in the State's evaluation report, dated March, 1973, the median location was selected because of economics ($1.5 million cheaper than a two way path located on one side of the structure) and multiple use (maintenance, inspection, emergency aid). When this decision was made we had a major revision in consultant design contract ($384,220 additional cost) placing the additional facility between the separate super-structures.

The other concern of Mr. Scotton was access to Government Island. No positive action has ever been initiated for access to the island which is owned by the Port of Portland. There are no proposed bike trails or pedestrian trails by any organization. In fact, there are some wildlife supporters and Port of Portland people who are not in favor of any access other than by boat. The Columbia Region Association of Governments (CRAG) has not requested such access in their meetings.

It would appear to us that access is not supportable and is not appropriate for inclusion at this time.

Original Signed By
G. L. Green
Division Administrator
G. L. Green

Attachments
Ltr, 1-5-76, Oregon Hwy Admin Klaboe to Sen Packwood
Memo, 12-18-75, OSHD I-205 Proj Engr to File
Ltr, 1-2-74, OSHD to City of Portland Bicycle Adv Comm
Ltr, 12-20-73, City of Portland Bicycle Adv Comm to OSHD

cc:
Wash DC Ofc (HNG-31, Frank Johnson)
Region (10ED)
Region (10BR)
OSHD (Klaboe)
OSHD (W Hart)
OSHD (G Potter)

431-H
431A-H

January 5, 1976

The Honorable Robert W. Packwood
United States Senator
6327 New Senate Office Building
Washington, D. C. 20510

Dear Senator Packwood:

This is in response to your inquiry relative to the letter from Robert Scotton who expressed concern about the proposed bikeway on the I-205 structure over the Columbia River.

We met with the Portland Bicycle Advisory Committee on December 16 to explain the design concept and answer questions to resolve any misunderstanding or differences. Present at the meeting were Sandy Jernstedt and Richard Hofland of the Portland Bicycle Advisory Committee and Donald Bates, Katherine Corrie, Mel Hickman and Conrad Nystrum of Multnomah County. The Highway Division was represented by Robert Ewen, I-205 Project Engineer, K. D. Limbocker, Design Engineer, Walter Hart, Bridge Engineer, James McClure, District Engineer, and Donald Shaffer, Bicycle Route Engineer. The Federal Highway Administration was represented by C. T. Christianson, Area Engineer. Also present was Doug Myhre of Howard, Needles, Tammen and Bergendoff, Consultants.

Both Multnomah County and the Bicycle Advisory Committee accepted the proposed design and pledged full cooperation in the planning and design of the remainder of the I-205 bikeway. At this writing the matter appears to be resolved.

Wishing you a most happy 1976.

Sincerely,

F. B. Klaboe, Administrator
and State Highway Engineer

bc: E. S. Hunter
Victor D. Wolfe
R. N. Bothman
Walt Hart
James McClure

DES:mc srb

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WASHINGTON, D.C. 20590

DEC 24 1975

IN REPLY REFER TO:
HNG-25

Mr. Robert Scotton
Chairman for the Citizens
Bicycle Advisory Committee
Portland Bureau of Planning
424 SW. Main
Portland, Oregon 97204

Dear Mr. Scotton:

Senator Bob Packwood has requested that we answer your November 20 letter to him regarding the design of a combined bicycle and pedestrian pathway on the I-205 bridge over the Columbia River.

We do not have sufficient information in this office to respond to the specific issues you raise concerning the design of the I-205 bridge. Therefore, we are requesting our field office to furnish us with additional details.

When we receive this information we will respond further.

Sincerely yours,

J. J. CROWLEY

For H. A. Lindberg
Associate Administrator for
Engineering and Traffic Operations

CITIZENS BICYCLE
ADVISORY COMMITTEE

November 20, 1975

Proposed I-205 Bridge over the Columbia River

The current design for the I-205 bridge incorporates a combined bicycle and pedestrian pathway centered between dual, parallel, bridge spans (see attached diagram). This scheme would place pedestrians and bicycle riders in the middle of eight lanes of on-rushing freeway traffic, "protected" by a three foot high concrete barrier.

We envision that the pollution caused by automobile exhaust, dust, noise, and spray when the roadway is wet, will make the use of such a center path a freightful experience. Additionally, a pathway located between concrete retaining walls will soon fill up with dirt, grit, sanding material debris, and litter from the adjacent traffic lanes. This would require constant cleaning of the path to maintain it in useable condition.

Present plans for the bridge show that the span will cross Government Island on a "fill" section of roadway. While we endorse the current scheme not to allow motor vehicle access to the island, we strongly believe that access for bicycles and pedestrians should be provided. Non-motorized access to the island would allow people who do not own boats to enjoy the beaches and primitive island setting in common with those who presently can reach the area in their boats.

Informal conversation with Highway Division personnel indicate that after the federal government agreed that bicycle and pedestrian access to the bridge should be included, the Highway Division made the quickest, simplest and cheapest alterations possible. It is our opinion that this approach to their task resulted in an inferior product that fails to meet the needs it was intended to serve.

NOTED
R. B. SIPPRELL

PORTLAND BUREAU OF PLANNING 424 SW MAIN PORTLAND, OREGON 97204 (503)248-4254

Furthermore, the resulting design was not publicized for review by bicycle and pedestrian advisory groups; groups established specifically to provide this type of design review. We believe that the Highway Division's failure to obtain suggestions from bicycle riders and pedestrians directly contributed to the present inadequate "final" design.

The Highway Division claims it is too late to alter the bridge design without causing further delay in its completion. They also argue that the cost of further redesign would not be worth the benefit to be derived, since they anticipate a relatively small number of pedestrians and bicycle riders on the bridge in any event. We believe that such arguments are without merit.

In the first place it is never too late to do something correctly. We do not believe it is reasonable to proceed with a project that is known to be inadequate or foolish merely to do something. With a project of the magnitude of the I-205 bridge it is incumbent upon those responsible to do it correctly. The fact that the present design of the bicycle and pedestrian pathway was arrived at through a serious oversight in the planning process lends additional weight to the need for a redesign. We are contemplating a large and expensive public project that will be with us for many, many years; there is no excuse for not doing it correctly.

As for the cost/benefit argument that only a small number of bicycle riders and pedestrians will use the bridge, that assumption is based on a past that cannot be counted upon to resemble the future. While it may be comfortable or convenient to assume that the future will be like the past, such an approach to the future introduces a dangerous bias into the planning process. Empirical data can only exist for the past, and extrapolations and projections about the future that rely only on such old information stifles the imagination, and may lead to unsatisfactory consequences as a result of such short-sightedness.

The times are changing, but the real issue in any case is whether or not we want to build a new bridge over the Columbia River which can only be crossed if one is in a motor vehicle. To construct a bridge that does not allow adequate bicycle and pedestrian access is to restrict public mobility to motor vehicles at a time when energy resources cast serious doubt on the future of the automobile. Failure to adequately provide for non-motorized bridge traffic is a mistake.

Robert Scotton.

Robert Scotton, Chairman
for the Citizens Bicycle Advisory Committee

Joe Bradetich
Joe Heidel
Sandy Jernstedt
John Kirkpatrick
Brian Lightcap
Dusty Maxwell-Davidson

CITIZENS BICYCLE
ADVISORY COMMITTE

20 November 1975

Senator Bob Packwood
6327 New Senate Office Building
Washington, D.C. 20510

Dear Senator Packwood:

The Citizens' Bicycle Advisory Committee is appointed by the Mayor of Portland to advise the City in all matters pertaining to bicycling and walking. It has come to the attention of the Committee that the Oregon State Highway Division is planning to redesign the proposed I-205 bridge across the Columbia River to widen it, so it will accommodate 4 vehicle lanes in each direction, instead of 3 lanes as under the present plan.

As presently planned, the bridge would provide passage for bicycles and pedestrians on a pathway between the twin bridge structures. This arrangement is unacceptable to this Committee, because the bicyclists and pedestrians using the path would be crowded in between multiple lanes of fast-moving freeway traffic; they would be exposed to dust, grit, noise, exhaust fumes; and would be deprived of any view of the river, mountains, or marine traffic. Furthermore, we believe it would be impracticable to maintain the bicycle/pedestrian path in usable condition, because, located between two high retaining walls, the path would soon fill up with highway debris.

This Committee has advised the Portland City Council to request the Oregon State Highway Division to revise plans for the I-205 bridge to provide more reasonable bicycle/pedestrian access, and to provide bicycle and pedestrian access to Government Island, which will be crossed by the proposed I-205 route on a roadway fill. A copy of our recommendations to the City Council is attached for your information, as well as some additional comments on the situation, and a diagram of the proposed bridge.

PORTLAND BUREAU OF PLANNING 424 SW MAIN PORTLAND, OREGON 97204 (503)248-4254

We request your help in convincing the Oregon State Highway Division, as well as the Federal Highway Administration which will review the revised plans and administer the Federal share of the funding for the bridge, that it is necessary to incorporate a safe and pleasant bicycle and pedestrian path into the I-205 bridge structure. Under the 1973 Federal-Aid Highway Act up to $2 million of Federal funds can be used per year for bicycle/pedestrian facilities in each State. With a view to a future decrease in dependency on motor vehicle travel, we recognize that major structures, such as the I-205 bridge, must make provisions for non-motorized travel. We request you to assist us in communicating this fact to the State and Federal highway officials.

Thank you for your assistance with this matter.

Sincerely,

Robert Scotton.

Robert Scotton, Chairman
Portland Citizens' Bicycle Advisory Committee

DH:bn

CITIZENS BICYCLE
ADVISORY COMMITTEE

November 20, 1975

MEMORANDUM

TO: Mayor Neil Goldschmidt
Commissioner Francis Ivancie
Commissioner Connie McCready
Commissioner Mildred Schwab
Commissioner Charles Jordan

FROM: Citizens Bicycle Advisory Committee

RE: Proposed I-205 Bridge over the Columbia River

The Oregon State Highway Division and the federal government, responding to local requests, agreed to incorporate bicycle and pedestrian access across the proposed I-205 bridge. The Highway Division completed design modifications and, without checking either the appropriateness or the advisibility of their design with any bicycle or pedestrian advisory group, included their ideas in plans for the bridge that are now claimed to be "90% complete" and not open for further revision.

We believe this design, now considered "final" by the Highway Division, is inadequate and unsafe.

In addition, we are disturbed by the Highway Division's breech of the planning process by their failure to discuss their ideas with the user public. Failure on the part of the Highway Division to involve citizens in the planning process is a serious oversight.

We urge you to:

1. Request the Oregon State Highway Division (and any other appropriate groups) to redesign the I-205 bridge bicycle and pedestrian pathway, and to include within the redesign access to and from Government Island for non-motorized traffic; and

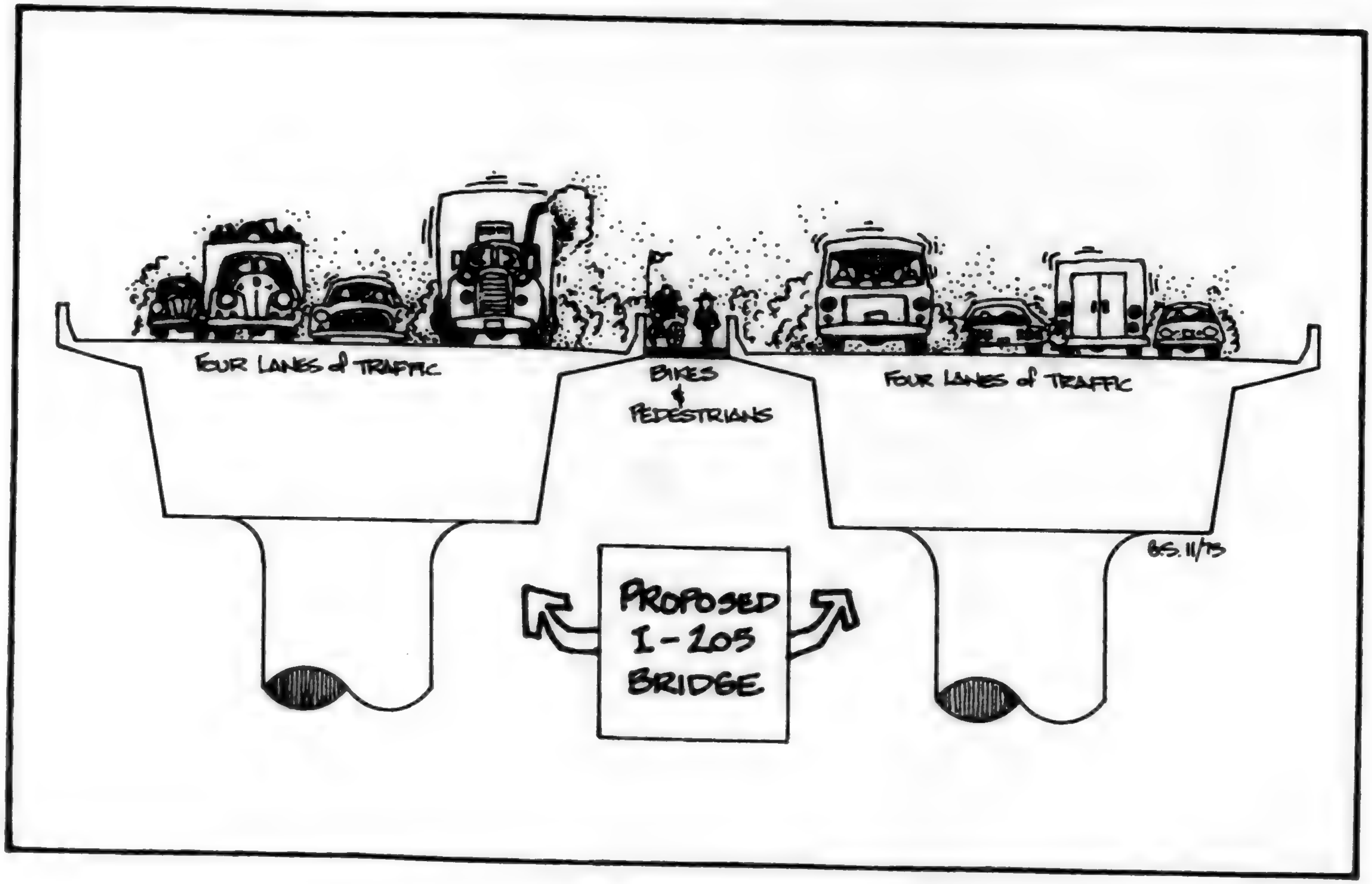
PORTLAND BUREAU OF PLANNING 424 SW MAIN PORTLAND, OREGON 97204 (503) 248-4254

2. Take appropriate steps to ensure that the redesign, and all future bicycle and pedestrian related proposals, be submitted to the public for their review and comment.

We have attached some additional comments on this situation, plus a diagram of the bridge showing the proposed pathway location.

Robert Scotton, Chairman
for the Citizens Bicycle Advisory Committee

Joe Bradetich
Joe Heidel
Sandy Jernstedt
John Kirkpatrick
Brian Lightcap
Dusty Maxwell-Davidson


FOUR LANES of TRAFFIC
BIKES & PEDESTRIANS
FOUR LANES of TRAFFIC
B.S. 11/73
PROPOSED I-205 BRIDGE

January 5, 1976

431-H

The Honorable Mark O. Hatfield
United States Senator
463 Old Senate Office Building
Washington, D. C. 20510

Dear Mark:

This is in response to your inquiry relative to the letter from Robert Scotton who expressed concern about the proposed bikeway on the I-205 structure over the Columbia River.

We met with the Portland Bicycle Advisory Committee on December 16 to explain the design concept and answer questions to resolve any misunderstanding or differences. Present at the meeting were Sandy Jernstedt and Richard Hofland of the Portland Bicycle Advisory Committee and Donald Bates, Katherine Corrie, Mel Hickman and Conrad Nystrum of Multnomah County. The Highway Division was represented by Robert Ewen, I-205 Project Engineer, K. D. Limbocker, Design Engineer, Walter Hart, Bridge Engineer, James McClure, District Engineer, and Donald Shaffer, Bicycle Route Engineer. The Federal Highway Administration was represented by C. T. Christianson, Area Engineer. Also present was Doug Myhre of Howard, Needles, Tammen and Bergendoff, Consultants.

Both Multnomah County and the Bicycle Advisory Committee accepted the proposed design and pledged full cooperation in the planning and design of the remainder of the I-205 bikeway. At this writing the matter appears to be resolved.

Wishing you a most happy 1976.

Sincerely,

F. B. Klaboe, Administrator
and State Highway Engineer

bc: E. S. Hunter
Victor D. Wolfe
R. N. Bothman
Walt Hart
James McClure

DES:mc srb

7115

FORM 81-734 3030

# OREGON STATE HIGHWAY DIVISION

FILE:

INTER-OFFICE CORRESPONDENCE
Portland, Oregon 97213
December 18, 1975

FROM: R. T. EWEN
I-205 Project Engineer

SUBJECT: I-205 BICYCLE PLANNING COORDINATING MEETING

TO: MEMO TO THE FILE

NOTED
E. S. HUNTER

On December 16, a bikeway conference was held in the Metro office upon request of the Project Engineer. This conference was scheduled due to recent news articles, and speakers from various committee meetings, stating that the bicycle path on the Columbia River Bridge, as planned, was unsatisfactory.

The meeting was opened by R. T. Ewen, including introductions and the general purpose of the meeting. Mr. Ewen then requested Don Shaeffer to present a general planning history of the bicycle path and the documentation as supplied by all government units. Discussed were past alternatives considered, including construction features and estimates. He also discussed the present proposal for the center lane bikeway, why it was adopted, and the requirement that the bikeway be a joint-use facility.

Walt Hart described the structural requirements of the different alternatives, facts to substantiate the estimates, and stated that the bridge was now 95-97% complete in its design and remarked on the seriousness of any changes at this date.

At this time, I presented the alternates of re-design as highly improbable, and that any conflict in the bikeway issue on the bridge would probably result in no bikeway at all. Following this, the City Bicycle Committee retracted their former news releases and letters and further stated that they had been uninformed of the prior cooperative planning efforts, and that they would agree that the center lane bikeway would meet their desires. This cleared the way for the bikeway as far as the Columbia River Bridge is concerned.

Following the bridge issue, I invited both City and County bikeway committees to work closely with us in a cooperative manner in the design features for the remainder of the bikeway lying between Foster Road and the Columbia River. They will work closely with Don Schaeffer and our Metro design staff and each committee will participate with our TAC from hereon. The meeting closed with good feelings from all parties and it appears that the bikeway planning efforts for I-205 will continue in a cooperative manner.

Attached is a list of participants in this meeting.

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Attachment

cc F. B. Klaboe
Jim McClure
Don Shaeffer

NOTED
F. B. KLABOE

8905
Bikeway

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# OREGON STATE HIGHWAY DIVISION

HIGHWAY BUILDING • SALEM, OREGON • 97310

TOM McCALL
GOVERNOR

F. B. KLABOE
Administrator of Highways

August 2, 1974

E. S. HUNTER

Mr. R. Jack Allen
Sverdrup & Parcel and Associates, Inc.
P. O. Box 369
Bellevue, WA 98004

Dear Mr. Allen:

Columbia River (I-205) Bridge
Bridge 9555
Oregon Bike Ramp

Although the plan for the bike ramp at the south end of the structure has been approved, we wish to remind you that since this ramp is no longer on the original length bridge, there should be no additional design work done on this ramp until further notice.

Very truly yours,

Walter J. Hart
Bridge Engineer

ORIGINAL SIGNED
R.W. ELLISON

R. W. Ellison
Bridge Administration Engineer

PMO:dh

cc E. S. Hunter

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OFFICE OF
ASSISTANT STATE HIGHWAY ENGINEER

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Bikeway

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**OREGON STATE**
**HIGHWAY DIVISION**

HIGHWAY BUILDING • SALEM, OREGON • 97310

TOM McCALL
GOVERNOR

F. B. KLABOE
Administrator of Highways

July 19, 1974

NOTED
E. S. HUNTER

TO Mr. Glen Green
Division Engineer
Federal Highway Administration
477 Cottage St. NE
Salem, OR 97308 Attention Mr. Herbert A. Schell

FROM ORIGINAL SIGNED
WALTER J. HART
Walter J. Hart
Bridge Engineer

SUBJECT Oregon Project I-205-7(2)303
Columbia River Bridge and Bike Path
Sverdrup & Parcel and Associates' Status Report No. 65

Your letter of July 18, 1974 indicated some concern with the work being performed by our consultant as reported on their status report No. 65. The consultant's final design work is limited to the design of the structure north of Pier 14.

The reference in the consultant's status report to 51% of the design being completed refers to the design of the bike path on the Washington approach spans and the main river spans to Pier 14. Work on the 4000-foot extension and piers in the Oregon levy was limited to preliminary design only. No final design in this area has been authorized. The consultant has been requested to clarify this situation in their future status reports.

WJH/ag

cc E. S. Hunter w/attach.
Sverdrup & Parcel

RECEIVED
JUL 22 1974
OFFICE OF
ASSISTANT STATE HIGHWAY ENGINEER

A DIVISION OF THE DEPARTMENT OF TRANSPORTATION

Form FHWA 121 (Rev. 5-73)

UNITED STATES GOVERNMENT

# Memorandum

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
Box 300
Salem OR 97308

DATE: July 18, 1974

In reply refer to: 10-41.6

SUBJECT: Oregon Project I-205-7(2)303
Columbia River Bridge and Bikepath
Sverdrup & Parcel and Associates' Status Report
No. 65, 7-5-74

FROM : G. L. Green, Division Engineer

TO : Mr. F. B. Klaboe, Administrator & State Highway Engineer
Attention: Mr. Walter J. Hart, Bridge Design Engineer

We have reviewed the consultant's progress report for the period June 22 to July 5.

Two comments have appeared for several reports, and we question what future work is required for the bikepath design under the final design of the original agreement. We note that work is progressing on the Oregon levee bridge pier and bikepath south access ramp. However, it was our impression that this work was completed and the consultant was not engaged for any further review.

To our knowledge, we have not authorized any additional engineering investigation in this respect, and would therefore appreciate clarification of these comments.

G. L. Green

7-22-74
Walt
O/a
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**OREGON STATE**
**HIGHWAY DIVISION**

HIGHWAY BUILDING • SALEM, OREGON • 97310

TOM McCALL
GOVERNOR

F. B. KLABOE
Administrator of Highways

June 24, 1974

Mr. C. S. Gloyd
Bridge Engineer
Washington Department of Highways
Highway Administration Building
Olympia, WA 98504

NOTED
E. S. HUNTER

Dear Mr. Gloyd:

Columbia River (I-205) Bridge
FHWA Approval

We believe the attached letter from the Federal Highway Administration approving the choice of bike ramp alternates at each end of the bridge and verifying their verbal approval of realigning piers 4 through 7, subject to cost analysis, ties up all of the loose ends requiring their approval to this date.

Very truly yours,

ORIGINAL SIGNED
WALTER J. HART

Walter J. Hart
Bridge Engineer

PMO:dh
Attachment

cc E. S. Hunter

RECEIVED
JUN 25 1974
OFFICE OF
ASSISTANT STATE HIGHWAY ENGINEER

Form FHWA 121 (Rev. 7-72)

UNITED STATES GOVERNMENT

# *Memorandum*

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
Box 300
Salem OR 97308

DATE: June 19, 1974

In reply refer to: 10-41.7

SUBJECT: Oregon Project I-205-7(2)303
Columbia River Bridge
Bike Path Ramp and Piers 4 - 7 Realinement

FROM : G. L. Green, Division Engineer

TO : Mr. F. B. Klaboe, Administrator & State Highway Engineer
Salem, Oregon
Attention: Mr. E. S. Hunter, Asst State Highway Engineer

Mr. Hart's letter of February 21 requested approval of bike path ramps and design cost for the realinement of Piers 4 - 7.

We approve the design of Scheme G (Sheet 45 of preliminary plan submission) for the Washington ramps and Scheme J (Sheet 64) for the Oregon ramps.

We have given you verbal approval (December 20, 1973) for adjusting Piers 4 - 7 alinement as requested by the State of Washington subject to a satisfactorily supported cost and the incorporation of the work into a supplemental agreement. Some of the support data offered (see S&P letter, December 28, 1973, signed by Allen) is not consistent with previous acceptable overhead cost.

NOTED
E. S. HUNTER

cc Hart
Ripley and
develop
acceptable
cost schedule
ESH

For G. L. Green

NOTED
A. E. JOHNSON

RECEIVED
STATE HWY ENGR
JUN 20 '74
REFER TO

FOR

NOTED
R. W. ELLISON

NOTED
W. J. HART

RECEIVED
JUN 21 1974
OFFICE OF
ASSISTANT STATE HIGHWAY ENGINEER

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JUN 24 1974
BRIDGE DIVISION

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Bikeway

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OREGON STATE
HIGHWAY DIVISION

HIGHWAY BUILDING • SALEM, OREGON • 97310

TOM McCALL
GOVERNOR

F. B. KLABOE
Administrator of Highways

February 22, 1974

Mr. Jack Allen
Sverdrup & Parcel and Associates, Inc.
P. O. Box 369
Bellevue, WA 98004

Dear Mr. Allen:

Columbia River (I-205) Bridge
Bridge No. 9555
Pedestrian Bicycle Path

In answer to your letter of January 22, 1974, both Washington and Oregon agree that the bent plate alternate for covering the expansion joint is the most satisfactory.

Also, we both agree that more thought should be given to the shape, size and spacing of the metal rail members.

Very truly yours,

ORIGINAL SIGNED
WALTER J. HART
Walter J. Hart
Bridge Engineer

NOTED
E. S. HUNTER

PMO:dh

cc E. S. Hunter
C. S. Gloyd
R. L. Carroll
Glen Green

RECEIVED
FEB 22 1974
OFFICE OF
ASSISTANT STATE HIGHWAY ENGINEER

A DIVISION OF THE DEPARTMENT OF TRANSPORTATION

8905
Bikeway

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**OREGON STATE**
**HIGHWAY DIVISION**

HIGHWAY BUILDING • SALEM, OREGON • 97310

TOM McCALL
GOVERNOR

F. B. KLABOE
Administrator of Highways

February 15, 1974

Mr. R. Jack Allen, P.E.
Sverdrup & Parcel and Associates, Inc.
P O Box 369
505 106th NE
Bellevue, Washington 98004

NOTED
E. S. HUNTER

Dear Mr. Allen:

Columbia River (I-205) Bridge
Bridge 9555
Bike Ramp Washington End

We have received a communication from the Washington State Highway Department expressing concern for the safety of cyclists negotiating the curve at the north end of the subject ramp. Since the design of the approach fill at that end will be their responsibility, it is suggested you coordinate your efforts to alleviate this problem directly with their office.

Very truly yours,

ORIGINAL SIGNED
WALTER J. HART
Walter J. Hart
Bridge Engineer

PMO/ag

cc ~~E. S. Hunter~~
~~R. L. Carroll~~
G. L. Green

RECEIVED
FEB 19 1974
OFFICE OF
ASSISTANT STATE HIGHWAY ENGINEER

8905

Bikeway

8

SVERDRUP & PARCEL AND ASSOCIATES, Inc.
*Consulting Engineers*
505 - 106TH AVENUE N. E.
P. O. BOX 369
BELLEVUE, WASHINGTON 98004

January 22, 1974

RECEIVED
JAN 24 1974
OFFICE OF
ASSISTANT STATE HIGHWAY ENGINEER

Oregon State Highway Division
Highway Building
Salem, Oregon 97310

Attention: Mr. Walter J. Hart
Bridge Engineer

Gentlemen:

Subject: I-205 Columbia River Bridge
Bridge 9555
Pedestrian-Bicycle Path and
Extension Studies

Enclosed for your information is a copy of a letter from our architectural consultant, Broome, Selig, Oringdulph & Partners. Included are evaluations of access ramps for the bike path and of alternative schemes for extending the bridge. Concern is also expressed about the possible lack of communication of bridge planning to interested local parties.

We will be pleased to discuss these matters with you if you so desire.

Very truly yours,

SVERDRUP & PARCEL AND ASSOCIATES, Inc.

Jack Allen

R. Jack Allen, P. E.
Project Engineer

cc: Robert N. Bothman

2-1-74
original to Walt Hart
to handle.

NOTED
E. S. HUNTER

Walt
pls handle.
ESH.

RECEIVED
JAN 24 1974
BRIDGE DIVISION

21 January 1974

Mr. R. Jack Allen
SVERDRUP & PARCEL AND ASSOCIATES, INC.
P.O. Box 369
Bellevue, Washington

Re: I-205 Columbia River Bridge

Dear Jack:

We have reviewed the information you have supplied us on the pedestrian-bike paths, access, bridge extension embankment alternatives and pier spacing. I apologize for the lengthy delay in this reponse and will attempt to reply to your questions more rapidly in the future.

Our replys, in the most part, must be based on our "visual impressions" of Sverdrup & Parcel's proposed alternatives. We have neither the study data or base to conclude in any other manner. Attached is an outline of our available information.

Comments:

Bike-Pedestrian Access Ramps

We generally concur with your conclusions. Use of the "G" ramp on the north end and "K" on the south are convenient and the least visually obtrusive.

We would suggest further review of your outlined system H on the north side. It impresses us as the most pleasant access to the bridge, both by participants and viewers.

System K on the south side might have two safety complications:

1. Cyclists coasting to the south must make a 90 degree turn to the east. An error in distance, speed or distraction might allow him to coast over the ramp edge into Marine Drive.

Partners:
John W. Broome
Charles E. Selig
Robert E. Oringdulph
John L. Henslee
Dennis J. O'Toole

Associates:
Robert H. Belcher
Heinz K. Rudolf
Donald T. Ross
Richard K. Spies
Charles G. Petersen

733 Northwest 20th
Portland, Ore. 97209
hone: 226 1575

ENCLOSURE TO
LETTER DATED
JAN 22 1974
FROM
SVERDRUP & PARCEL
AND ASSOCIATES INC.

RECEIVED
JAN 22 1974
SVERDRUP &
& ASSOCIATES

2. At the intersection with Marine Drive, the cyclist must again make a 90 degree corner directly onto Marine Drive. Could a parallel path for a short distance alleviate this problem?

What consideration of graphics and lighting of these ramps has been made?

Bridge Extension, Embankment Alternatives and Pier Spacing

We are generally relieved that the runway fill was not required and that the airport has developed adequate alternate runway systems.

We might ordinarily prefer the bridge on piers, to a continuous embankment, but believe that alternate 2 has some practical and aesthetic opportunities.

> A straight 1600 feet long embankment could be heavy and oppressive. It would cut off the tip from use and would tend to divide rather than integrate.
>
> If the embankment was widened, sculpted and landscaped, it could become an integral part of the island. Trees at each side of the bridge would develop a different and additional experience as the bridge is crossed.
>
> It would be important to provide pedestrian-bike access to the island, and the opportunity to move from its tip through, or under, the bridge embankment to the main body of the islan

If Alternate 2, with added aesthetic considerations is not developed, our choice would be the Alternate 1, with normal (240') spaced columns. The bridge would best "float" over the island rather than be anchored to it with a maze of columns.

Generally Jack, we agree with your design and study proposals and would comment that we are impressed with the diversity you express in your study directions.

On your last trip to Portland we briefly discussed the lack of communication of bridge information to officials and citizen groups involved with planning in eastern Multnomah County. We well realize that beating the hornet's nest with an unprotected head can bring angry results. But, we also counsel that a totally ignorant, non-participating community could bring problems at a later date when planning is not so flexible.

We also realize that P.R. is a State responsibility but sometimes the State is not totally in touch with local problems. Lately "the people" (good or bad) have blocked the construction of a practical off-ramp from the east end of the Fremont Bridge. They are holding up the N.W. Portland freeway and have probably killed the Mt. Hood Freeway (even after 1.3 million dollars worth of in-depth alternate studies by S.O.M.).

Could a very careful, tactful program to further introduce I-205 and the bridge to the public avoid problems in the future?

If you wish, we could assemble a list of agencies, people and groups important to this effort and gently determine their present knowledge and attitude. I do believe, however, that this is a responsibility of the State and not S & P. We welcome the opportunity to assist if we can.

After review of this varied dissertation, please note if you need further or different comments.

Best regards,

Robert E. Oringdulph

pk

# I-205 AVAILABLE INFORMATION

| | | |
|---|---|---|
| 1. | April, 1971 | Preliminary design report for proposed Interstate Route I-205 Columbia River Bridge. |
| 2. | July, 1971 | Supplemental studies to Preliminary Design Report for proposed Interstate Route I-205 Columbia River Bridge. |
| 3. | August 12, 1971 | Supplemental studies to Preliminary Design Report for proposed Interstate Route I-205 Columbia River Bridge. |
| 4. | October, 1971 | Plan of bridge with revisions dated 12/2/71. |
| 5. | March 17, 1972 | Letter from Ellison to Allen regarding bridge lighting. |
| 6. | March 20, 1972 | Letter from Bane to Hart regarding presentation of bike report. |
| 7. | January 2, 1973 | Letter and report titled a Pedestrian-Bicycle Path Addition to the Proposed Interstate Route I-205 Columbia River Bridge. |
| 8. | January 3, 1973 | Letter to Hart from Allen regarding railing detail. |
| 9. | March 20, 1973 | Supplemental studies for a pedestrian-bicycle path on the proposed Interstate I-205 Columbia River Bridge. |
| 10. | August 7, 1973 | Correspondence from July 26 (from Green to Klaboe), August 2 (from Hunter to Bane), July 19 (from Johnson to Bane), August 7 (Allen to Oringdulph) regarding extension analysis. |
| 11. | August, 1973 | Bridge plan. |
| 12. | September 18, 1973 | Letter from Allen to Oringdulph regarding bike paths. |
| 13. | October 15, 1973 | Letter and report to Hart from Allen regarding pedestrian-bike ramp studies. |

8905
Bikeway

8

STATE OF OREGON 1859

**OREGON STATE
HIGHWAY DIVISION**

HIGHWAY BUILDING • SALEM, OREGON • 97310

TOM McCALL
GOVERNOR

F. B. KLABOE
Administrator of Highways

January 8, 1974

NOTED
E. S. HUNTER

Mr. Jack Allen, P.E.
Sverdrup & Parcel and Associates, Inc.
P. O. Box 369
Bellevue, WA 98004

Dear Mr. Allen:

Columbia River (I-205) Bridge
Bridge 9555
Pedestrian Bicycle Path

The State of Washington has indicated that for drainage of the bike path they prefer the "Alternate Detail, Fixed Side" as submitted to you at our December 20, 1973 meeting. They feel as we do, however, that the expansion side detail will require some more refinement.

They also stated they are now satisfied that the details are capable of accepting twice the anticipated earthquake movements.

Very truly yours,

ORIGINAL SIGNED
WALTER J. HART
Walter J. Hart
Bridge Engineer

PMO:dh

cc E. S. Hunter
R. N. Bothman
Federal Highway Administration

RECEIVED
JAN 9 1974
OFFICE OF
ASSISTANT STATE HIGHWAY ENGINEER

8715-Bikeway

**OREGON STATE**
**HIGHWAY DIVISION**

HIGHWAY BUILDING • SALEM, OREGON • 97310

January 2, 1974

Mrs. Sandy Jernstedt and Mr. Hans Kaplick
Co-Chairpersons, Bicycle Advisory Committee
The City of Portland
1220 SW Fifth Avenue
Portland, Oregon 97204

NOTED
E. S. HUNTER

Dear Mrs. Jernstedt and Mr. Kaplick:

In response to your December 20 letter, the Highway Division has received approval from the Federal Highway Administration to increase the width of the Columbia River (I-205) Bridge bikeway from 8 feet to 9'4" as shown on the attached sketches. We are of the opinion this increased width will be more than adequate for cyclists while accommodating light service vehicles for maintenance and cleaning.

Your Committee's recommendation to increase the width to 12 feet would create a very costly revision, especially in view of the high cost of this facility. In some areas the twin bridges are designed to share large common footings in the river. Increasing the bikeway width increases the footing sizes, accounting for a large share of the cost in widening.

I appreciate receiving your Committee's ideas concerning this very important bikeway link, providing bicycle access into the state of Washington from the East Multnomah County area.

Very truly yours,

Victor D. Wolfe
Location Engineer

By

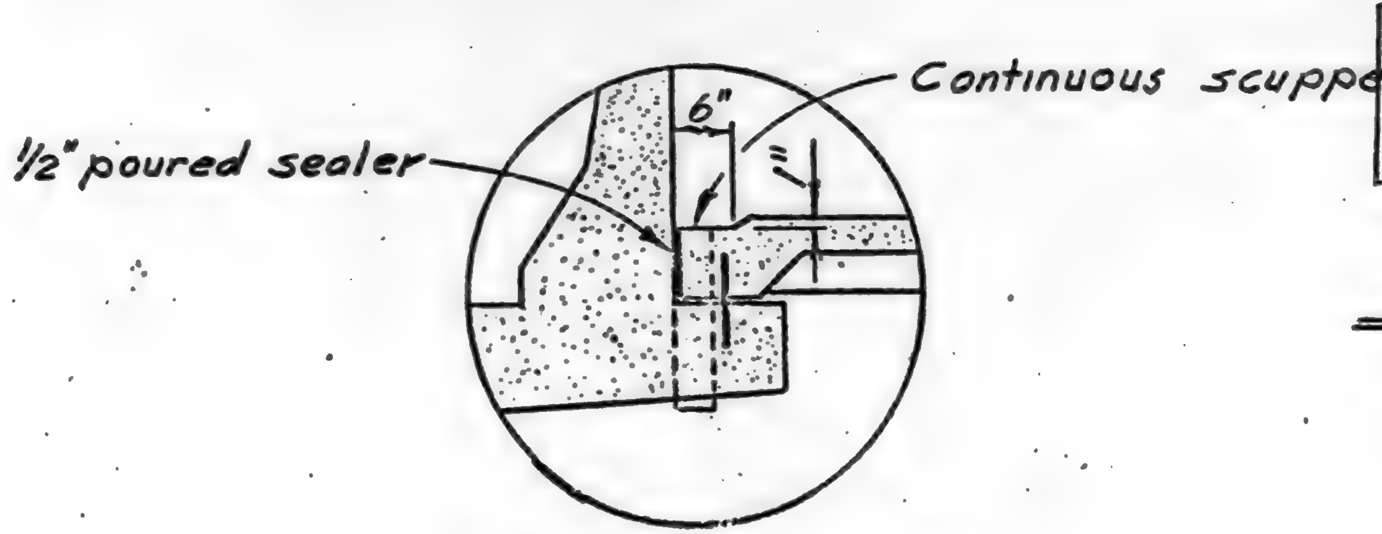
James D. McClure
Bicycle Route Engineer

Attach
cc: James Apperson, City of Portland
Cliff Harris, Multnomah County
bc: E.S. Hunter
W.J. Hart
R.N. Bothman

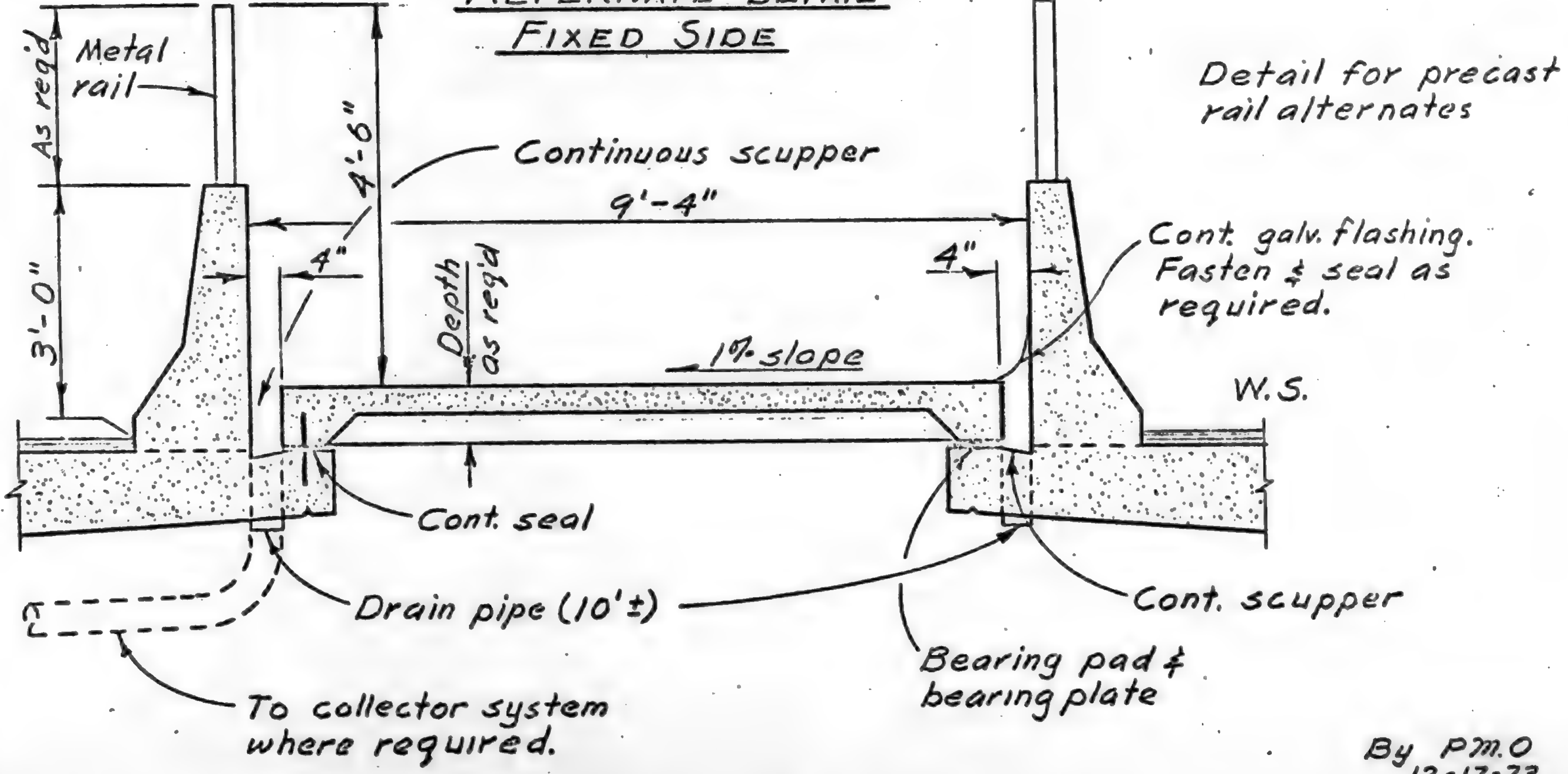
RECEIVED
JAN 3 1974
OFFICE OF
ASSISTANT STATE HIGHWAY ENGINEER

PRELIMINARY COPY
SUBJECT TO CHANGE

## BIKE PATH DETAILS

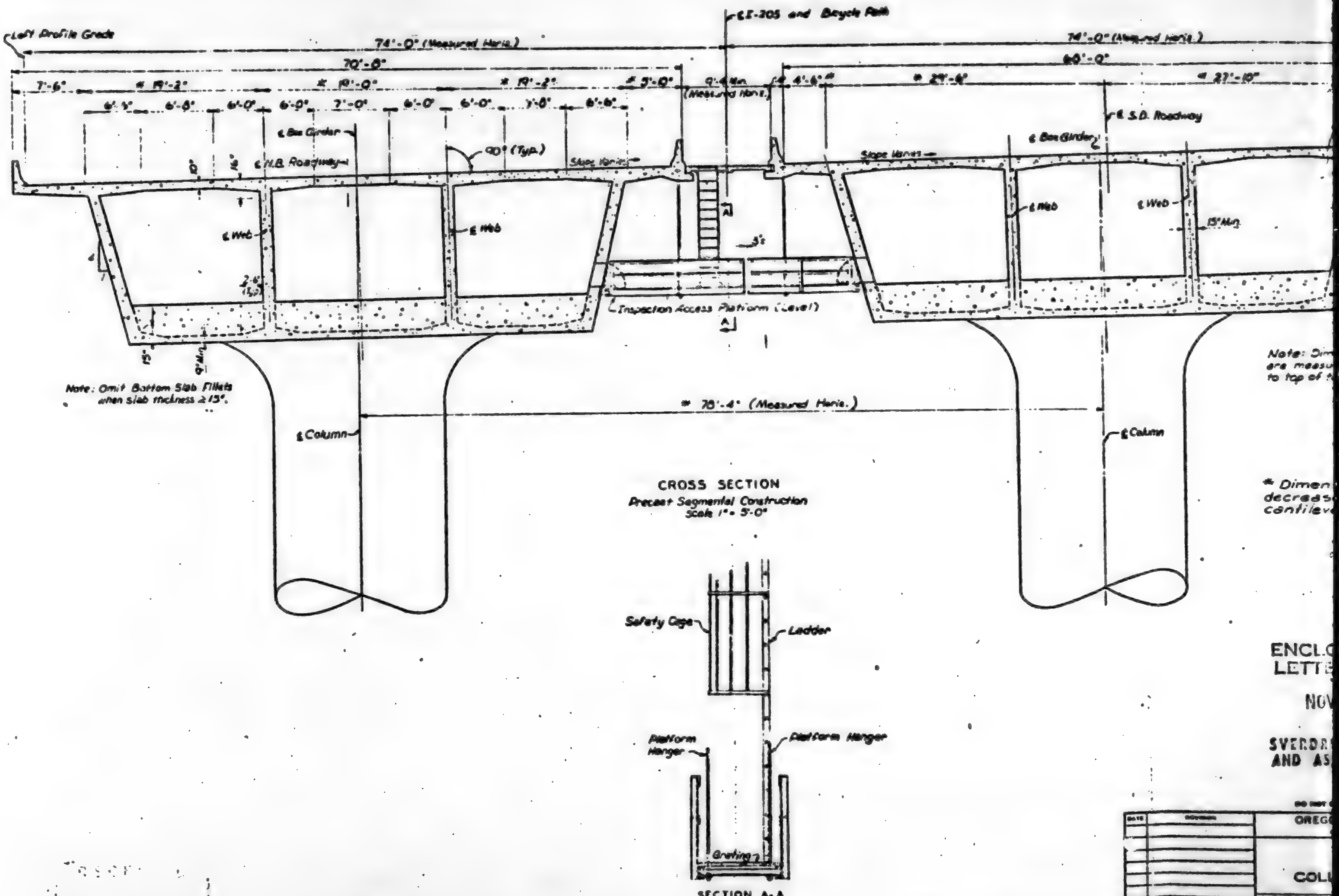

1/2" poured sealer
Continuous scupper
6"
1"

ALTERNATE DETAIL
FIXED SIDE


Metal rail
As req'd
3'-0"
4'-6"
Continuous scupper
9'-4"
4"
Depth as req'd
1% slope
4"
W.S.
Cont. seal
Drain pipe (10'±)
Cont. scupper
Bearing pad & bearing plate
Cont. galv. flashing. Fasten & seal as required.
To collector system where required.

Detail for precast rail alternates

By PMO
12-17-73


Left Profile Grade
℄ I-205 and Bicycle Path
74'-0" (Measured Horiz.)
70'-0"
74'-0" (Measured Horiz.)
60'-0"
7'-6"
* 19'-2"
* 19'-0"
* 19'-2"
* 5'-0"
9'-4 Min.
(Measured Horiz.)
4'-6"
* 29'-6"
* 27'-10"
6'-5"
6'-8"
6'-0"
6'-0"
7'-0"
6'-0"
6'-0"
7'-0"
6'-6"
℄ Box Girder
℄ N.B. Roadway
90° (Typ.)
Slope Varies
℄ Web
℄ Web
2'-6" (Typ.)
15"
9" Min.
A
A
3'±
Inspection Access Platform (Level)
℄ S.D. Roadway
℄ Box Girder
℄ Web
℄ Web
15" Min.
* 78'-4" (Measured Horiz.)
℄ Column
℄ Column
Safety Cage
Ladder
Platform Hanger
Platform Hanger
Grating

Note: Omit Bottom Slab Fillets when slab thickness ≥ 15".

CROSS SECTION
Precast Segmental Construction
Scale 1" = 5'-0"

SECTION A-A
Scale 1" = 1'-0"

Note: Dim
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DATE
SVERDRUP & PARCEL AND ASSOCIATES, INC.

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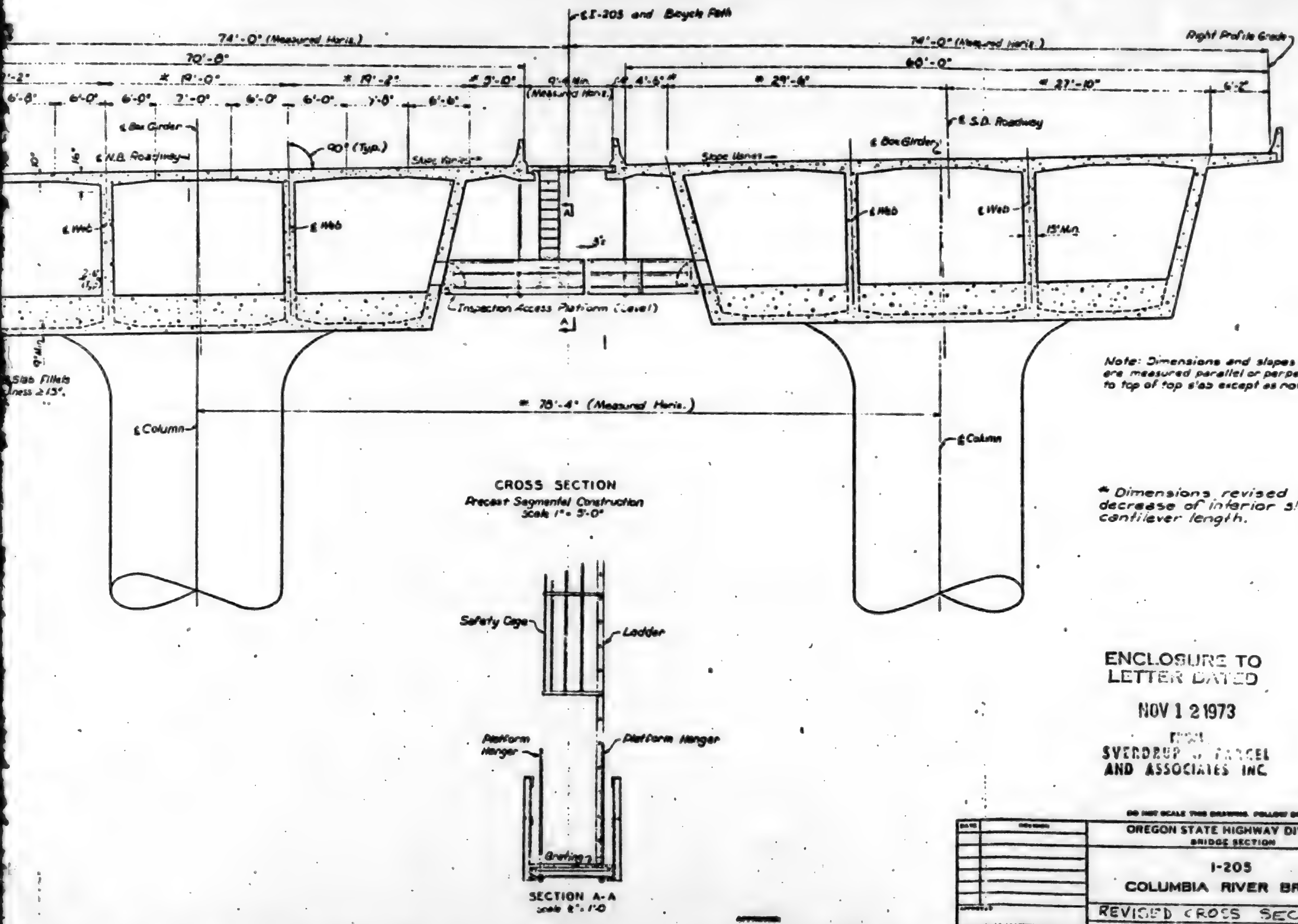
℄ I-205 and Bicycle Path
74'-0" (Measured Horiz.)
70'-8"
'-2"
* 19'-0"
* 19'-2"
* 5'-0"
6'-8"
6'-0"
6'-0"
7'-0"
6'-0"
6'-0"
7'-0"
6'-6"
0'-4 Min. (Measured Horiz.)
℄ Box Girder
℄ N.B. Roadway
90° (Typ.)
Slope Varies
℄ Web
℄ Web
2'-0" (Typ.)
9" Min.
Slab Fillets
ness ≥15°
℄ Column
A
A
3"
Inspection Access Platform (Level)
74'-0" (Measured Horiz.)
Right Profile Grade
60'-0"
* 4'-6"
* 29'-6"
* 27'-10"
6'-2"
℄ S.D. Roadway
℄ Box Girder
Slope Varies
℄ Web
℄ Web
15" Min.
* 78'-4" (Measured Horiz.)
℄ Column
Safety Cage
Ladder
Platform Hanger
Platform Hanger
Grating

**CROSS SECTION**
Precast Segmental Construction
Scale 1" = 5'-0"

**SECTION A-A**
Scale ½" = 1'-0"

Note: Dimensions and slopes shown are measured parallel or perpendicular to top of top slab except as noted.

* Dimensions revised for decrease of interior slab cantilever length.

ENCLOSURE TO
LETTER DATED
NOV 1 2 1973
FROM
SVERDRUP & PARCEL
AND ASSOCIATES INC

| | |
|---|---|
| DATE | REVISION |
| | |
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APPROVED
DESIGNED ___ CHECKED ___
DRAWN ___ CALC. BOOK ___

SVERDRUP & PARCEL AND ASSOCIATES, INC.

DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

OREGON STATE HIGHWAY DIVISION
BRIDGE SECTION

I-205
COLUMBIA RIVER BRIDGE

REVISED CROSS SECTION

DATE ___ SHEET ___ OF ___
BRIDGE NO. 9555 DRAWING NO. ___
(52)

8905

Bikeway

August 2, 1973

Mr. Ray Bane
Assistant Vice President
Sverdrup & Parcel & Associates, Inc.
P. O. Box 369
Bellevue, Washington 98004

Dear Mr. Bane:

Columbia River Bridge
I-205

The Federal Highway Administration has approved our latest request to incorporate a bike path on the Columbia River Bridge. The approval is for the precast median-mounted pathway shown in Figure 6 of your January 2, 1973 bike path study. This letter is your authority to revise the design completed to date and alter the criteria for the remaining work to include the bike path.

The addition of the bike path to the structure will necessitate a further amendment to your contract for engineering services. Please supply us with a breakdown of the costs and time delays due to this change.

It may be appropriate at this time, due to the delays occasioned by the addition of the bike path and the 4,000-foot extension study, to take a further look at another aspect of the design criteria. Our previous instructions to you precluded the use of any type of substructure construction other than conventional cofferdams. This decision was based on assumed environmental objections to any type of open excavation in the river. In recent discussions with the various agencies concerned with the environment and the river, we find little objection to the open excavation concept subject to some controls on disposal.

Mr. Ray Bane
August 2, 1973
Page Two

We would appreciate your general comments on whatever merits the alternate pier types may have in terms of cost and construction time. The expenditure of resources to date may preclude any change in the pier design concept at this late date. It is, however, a question we feel should be asked considering the delay we are already faced with due to the other factors.

Enclosed for your information is a copy of the July 26, 1973 letter from the Federal Highway Administration approving the bike path.

Very truly yours,

E. S. Hunter
Assistant State Highway Engineer

Attachment

WJH:dh jf

bc: F. B. Klaboe
A. E. Johnson
W. J. Hart
J. H. Versteeg
V. D. Wolfe

8905
Bikeway

July 30, 1973

Mr. G. H. Andrews, Director of Highways
Washington Department of Highways
Highway Administration Building
Olympia, Washington 98504

Dear Mr. Andrews:

I-205 Columbia River Bridge
Bikeway

Attached for your information is a copy of a letter received from G. L. Green, Division Engineer, FHWA, indicating approval of a bicycle path in the median of the Interstate 205 bridge over the Columbia River. We have advised our consulting engineer to proceed with the design indicated in the lower sketch of Figure 6 in his report, a copy of which is also attached.

Please note that FHWA has requested adequate connecting bicycle trails or lanes be provided on both sides of the river and that these connecting trails be provided concurrent with or prior to the bridge construction. I presume that their proposal for the pathway design be limited to minor maintenance vehicles of 4,000 pound weight should apply to all approach ramps needed to accommodate the connecting trails on both sides of the river.

In a recent meeting with our consultant, we were advised that the final design for the structure is 20 months away due to the following reasons:

1. Addition of the bicycle trail to the deck system.

2. Re-evaluation of the pier alignment in the north channel due to the Port of Portland abandoning its airport expansion plan.

3. Extension of the structure across the south channel to the existing south bank, also because of the Port abandoning the airport expansion plan.

4. A valuation of a combined fill and south channel structure which has been requested by FHWA.

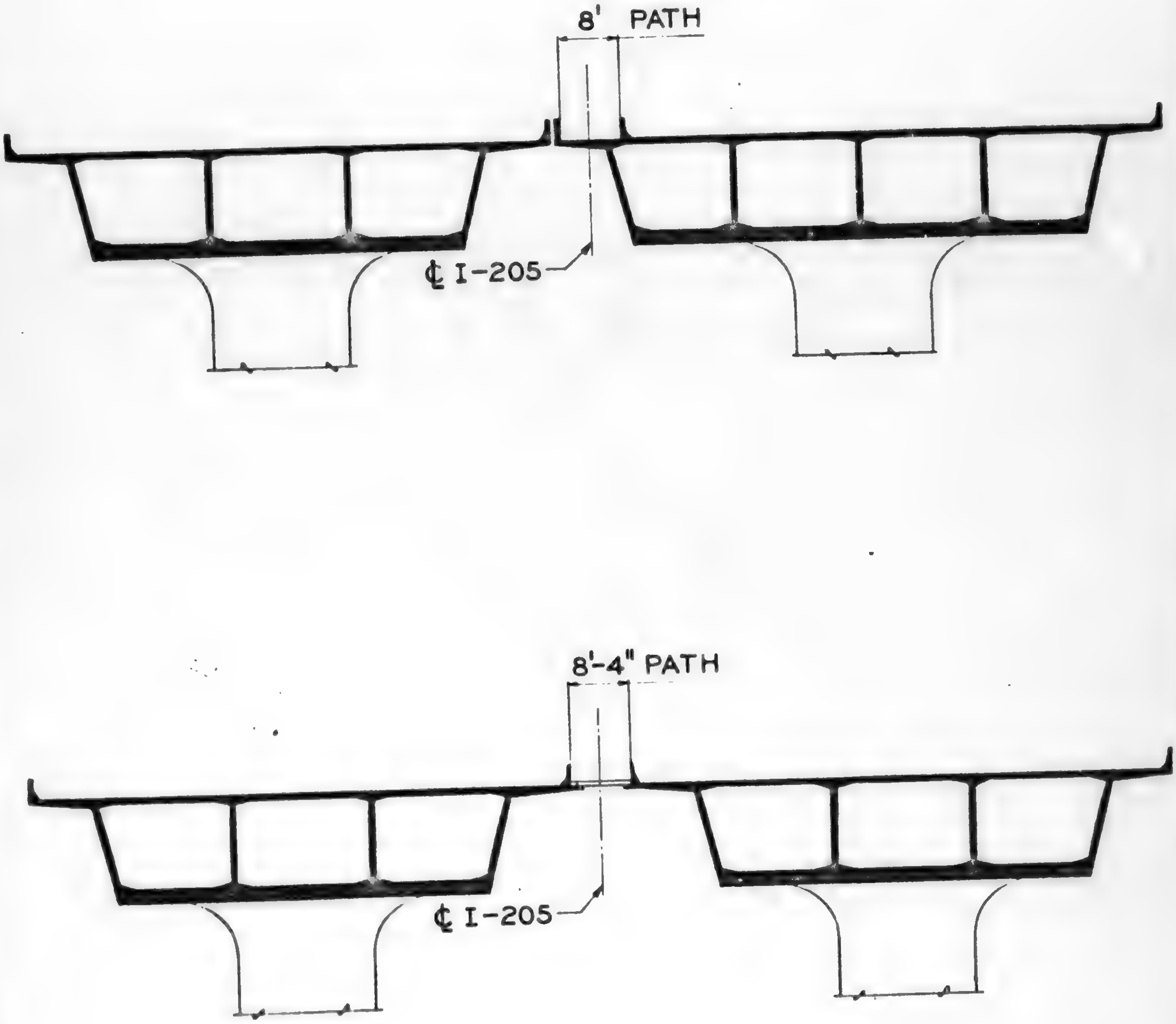
Please contact us if you need further information on any of the above points.

Very truly yours,

E. S. Hunter
Assistant State Highway Engineer

ESH:jf
Attachments

bc: F. B. Klaboe
A. E. Johnson
W. J. Hart
J. H. Versteeg
V. D. Wolfe


8' PATH
℄ I-205
8'-4" PATH
℄ I-205

PATH ON CENTERLINE, INTEGRAL OR PRECAST

FIGURE 6

Form FHWA 121 (Rev. 5-73)

UNITED STATES GOVERNMENT

# *Memorandum*

**DEPARTMENT OF TRANSPORTATION**
FEDERAL HIGHWAY ADMINISTRATION
Box 300
Salem OR 97308

DATE: July 26, 1973

In reply refer to: 10-35.6

SUBJECT: Oregon Project I-205-7(2)302
Columbia River Bridge Bikeway

FROM : G. L. Green, Division Engineer

TO : Mr. F. B. Klaboe, Administrator & State Highway Engineer
Salem, Oregon
ATTENTION: E. S. Hunter

Mr. Hunter's latest letter of May 18, 1973 submitted additional information on a proposed bikeway across the structure and requested a favorable response. We consider the proposal to provide a bicycle trail in the median of I-205 on the Columbia River Bridge satisfactory for the development of contract plans. This arrangement is depicted in the lower sketch of Figure 6 Sverdrup and Parcel's report dated January 2, 1973. This scheme will permit structural supports for the bicycle path deck to be cast integrally with the slab and parapet of the superstructure.

FAI funds may be used to participate in the additional costs of providing the bicycle trail in the median across the structure provided reasonably adequate connecting bicycle trails or lanes are provided on both sides of the river. These connecting trails should be provided concurrent with or prior to the bridge construction.

We recommend the expansion plate detail shown on Plate 2 of Sverdrup and Parcel's report be modified to provide a preformed compression joint seal in lieu of the hinge detail shown. We would also propose that the use of this pathway by minor maintenance vehicles be limited to a 4,000 pound weight limit.

G Green
G. L. Green

RECEIVED
STATE HWY ENGR
JUL 27 '73
REFER TO
Hunter TAA
FOR

| Info | Prep | R/D | DIR | Sign | Act | File |
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7-30-73
Hank
[illegible]

RECEIVED
JUL 30 1973
OFFICE OF
ASSISTANT STATE HIGHWAY ENGINEER

NOTED
A. E. JOHNSON

8905
Bikeway

May 18, 1973

Mr. Glen L. Green
Division Engineer
Federal Highway Administration
Post Office Box 300
Salem, Oregon 97308

Dear Mr. Green:

10-35.6
Oregon Project I-205-7(2)302
Columbia River Bridge Bikeway

This is in reply to your request of April 10 for seven points of additional information on the above project.

1. The current cost estimate of the proposal on the west side of the structure as outlined in the consultant's report of March 20, 1972 is $4,010,000.
2. The current estimated cost of the State Highway Division's choice of a precast median-situate path as outlined in the Evaluation Report of March, 1973 is $2,400,000.
3. If we assume that an additional 4000-foot viaduct is required as an extension to the south end of the bridge to conform with changes in airport development concepts, the total structural bikeway costs would then amount to:
   - a. $5,800,000 for a bike path integrally mounted on the west side of the bridge, including the 4000-foot extension.
   - b. $3,410,000 for a precast bike path carried between the bridges, including the 4000-foot extension.

4. If we follow the concept of supplying only the support system and necessary details for future addition of a precast bikeway between the bridges, the costs would amount to:

    a. $1,410,000 for the project as currently being designed.

    b. $1,940,000 if a 4000-foot viaduct extension to the south is included.

These estimates were supplied by the consultant, Sverdrup & Parcel and Associates, Inc. in answer to a special request. They also stated that "The costs shown above reflect the necessary modifications to establish concepts, variance in unit costs for similar or dissimilar superstructure cross sections, and include a twenty percent engineering and contingency figure".

5. The comments of the Washington Department of Highways on the latest proposal, dated April 3, 1973, are attached.

6. Three copies of the consultant's supplemental report, "A Pedestrian-Bicycle Path Addition to the Proposed Interstate Route I-205 Columbia River Bridge" dated January 2, 1973 are also enclosed.

7. Formal adoption of the overall CRAG plan cannot be expected until all participants have adopted their own compatible plans. Meanwhile, local municipalities have taken several important steps.

The official Bicycle Paths Task Force plan has been accepted by the City of Portland and was adopted by Council resolution as the official City plan on April 12, 1973. (Three copies of this report and resolution approving same are enclosed). Multnomah County has completed its bike route plans except for the final draft of the narrative. Formal approval is expected in a matter of weeks.

In Clark County, Washington a completed bikeways plan has been submitted to the Board of County Commissioners and is expected to be adopted by that body at its meeting on May 23, 1973. The same plan will be submitted to the Vancouver City Council for endorsement and approval.

All these plans conform with and can be incorporated into the CRAG plan with little or no modification.

In answer to the last request in your letter, the latest cross sections of the present bikeway and bridge proposal can be found in the enclosed copies of the consultant's supplemental report in Figure 6, with details on Plate 2.

On the basis of the Evaluation Report and this additional information, which should enable you to complete your assessment of our current proposal, we request that you favorably consider Federal participation in this project.

Very truly yours,

E. S. Hunter
Assistant State Highway Engineer

**Attachments**

LD:mc jf

bc: F. B. Klaboe
A. E. Johnson
V. D. Wolfe
Walt Hart

SVERDRUP & PARCEL AND ASSOCIATES, Inc.

April 30, 1973

Oregon State Highway Division
Highway Building
Salem, Oregon 97310

Attention: Mr. Walter J. Hart

Gentlemen:

Subject: I-205 Columbia River Bridge
Bike Path Cost Estimates

This is in reply to your letter of April 18, 1973 requesting current cost estimates for construction of the several configurations of bike paths on the structure. These estimates, representing 1973 costs, are as follows:

1. A bike path integrally mounted on the west side of the bridge as currently being designed; $4,010,000.

2. A precast bike path carried between the bridges as currently being designed; $2,400,000.

3. (a) A bike path integrally mounted on the west side of the bridge, including a 4,000' extension on the south end; $5,800,000.

(b) A precast bike path carried between the bridges, including a 4,000' extension on the south end; $3,410,000.

4. (a) Provide supports and necessary details for future installation of a precast bikeway between the bridges as currently being designed; $1,410,000.

(b) Provide support and necessary details for future installation of a precast bikeway between the bridges, including a 4,000' extension to the south; $1,940,000

The costs shown above reflect the necessary modifications to established concepts, variance in unit costs for similar or dissimilar superstructure cross sections, and include a twenty percent engineering and contingency figure.

Very truly yours,

SVERDRUP & PARCEL AND ASSOCIATES, Inc.

[illegible] Bane, P.E.
Assistant Vice President

NOTED

NOTED
J. D. McCLURE

5-4

Form FHWA-121 (12-67)
UNITED STATES GOVERNMENT

# *Memorandum*

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

Box 300
Salem OR 97308

DATE: April 10, 1973

In reply refer to: 10-35.6

TO : Mr. George M. Baldwin, Administrator of Highways
Salem, Oregon

FROM : Vernon V. Cusack, Acting Division Engineer
Salem, Oregon

SUBJECT: Oregon Project I-205-7(2)302
Columbia River Bridge Bikeways

RECEIVED
APR 12 1973
OFFICE OF
ASSISTANT STATE HIGHWAY ENGINEER

We have reviewed your "Evaluation Report" dated March 1973 submitted by Mr. Johnson's letter of March 22 on the bicycle path recommendations proposed by the consultant. A review has been performed by both our Regional and Washington offices. In making an assessment of your latest proposal, additional information is needed as follows:

1. A current cost estimate of your original proposal on the west side of the structure as outlined in the consultant's report of March 20, 1972.
2. Current costs of your choice of a precast unit outlined in the Evaluation Report of March 1973.
3. Include a cost of the bikeway on the viaduct assuming a 4,000 ft. viaduct is required in the airport development concepts.
4. Costs under the above alternate to add only support brackets and necessary joint details to accommodate differential movement between the structures without any decking included in the initial construction. This concept would assume the decking could be added later when there is assurance that the connecting bikeway system will be developed.
5. The Washington Highway Department's comments on the latest proposal.
6. Three copies of "A Pedestrian-Bicycle Path Addition to the Proposed Interstate Route I-205, Columbia River Bridge" dated January 2, 1973.

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NOTED
A. E. JOHNSON

BUY U.S. SAVINGS BONDS REGULARLY ON THE PAYROLL SAVINGS PLAN

7. A status report on adoption of the CRAG bikeways plan.

Please provide the most up-to-date cross section of the bridge, including the proposed bikeway detail so that a more definitive analysis of your proposal can be given.

RECEIVED
STATE HWY ENGR
APR 11 '73
REFER TO
FOR
Info Inves R/D D/R Sign Act File

WASHINGTON STATE
HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS

Highway Administration Building
Olympia, Washington 98504 (206) 753-6000

Daniel J. Evans - Governor
G.H. Andrews - Director

I-205
Col. R. B
Bikeway

April 3, 1973

Mr. A. E. Johnson
Deputy State Highway Engineer
Oregon State Highway Division
Highway Building
Salem, Oregon 97310

**NOTED**
**A. E. JOHNSON**

I-205 Columbia River Bridge
Bicycle Path Evaluation Report

Dear Mr. Johnson:

This is to acknowledge your letter of March 22 indicating your decision to submit the median bikeway to the Federal Highway Administration for approval.

We have no objection to this action and want to again lend our vigorous support to this proposal. We stand ready to assist in any way we can to facilitate this project.

Very truly yours,

G. H. ANDREWS
Director of Highways

By: W. M. FOSTER
Assistant Director for
Highway Development

GHA:fmd
WMF

cc: R. L. Carroll
J. H. Cooper, w/attachments

RECEIVED
STATE HWY ENGR
APR 5 '73
REFER TO
FOR

| Info | Hwys | RIO | D/R | Sixth | Act | File |
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| ✓ |  |  |  |  |  | ✓ |

## RESOLUTION NO. 31217

WHEREAS the City Council has appointed the Bicycle Paths Task Force and charged it to produce a comprehensive bicycle pathways plan for the City of Portland and this charge has been fulfilled; and

WHEREAS the City of Portland is required by law to expend at least one per cent of its annual gas tax revenues on bicycle and pedestrian paths construction and bicycles serve as an increasingly important aspect of a balanced transportation system; and

WHEREAS the City Council has approved the First and Second Phase recommendations of the Bicycle Paths Task Force and these recommendations are being actively implemented; and

WHEREAS the document Bicycle Facilities For Portland: A Comprehensive Plan, prepared by the Bicycle Paths Task Force, constitutes a practical and workable plan for development of bicycle pathway facilities; and

WHEREAS additional citizen input will be necessary for implementation of this plan and for working with the City on bicycle related matters; and

WHEREAS it is imperative to maintain flexibility in response to engineering and legal requirements, public and neighborhood demand, and changing conditions for implementation of the comprehensive plan; now, therefore

BE IT RESOLVED that the City Council adopts the document Bicycle Facilities for Portland: A Comprehensive Plan as its guideline plan for bicycle pathway construction within the City of Portland with the understanding that changes should be made as needed by engineering and legal requirements, public and neighborhood demand, and changing conditions; and

BE IT FURTHER RESOLVED that the City Council extends its sincere appreciation to the Bicycle Paths Task Force for its contribution and service to the City of Portland and discharges the Bicycle Paths Task Force for completion of its duties as charged; and

BE IT FURTHER RESOLVED that the City Council direct the Mayor to appoint a seven person Citizens Bicycle Advisory Committee prior to June 1, 1973 to operate under the auspices of the Commissioner of Public Works and charged with the following duties:

1. Assist the City with implementation of the comprehensive plan described in Bicycle Facilities For Portland: A Comprehensive Plan including review of design, priorities, public contact, and hearings.
2. Advise the City Council regarding bicycle related matters including City policies, bicycle parking, bicycle safety, and bicycle laws.

Adopted by the Council APR 12 1973

George Yerkovich
Auditor of the City of Portland

Commissioner Anderson
REW:bd
4/4/73

8905
Bikeway

8

March 22, 1973

Mr. Vernon V. Cusack
Acting Division Engineer
Federal Highway Administration
P. O. Box 300
Salem, OR 97308

Dear Mr. Cusack:

Transmitted herewith for your consideration are 10 copies of an evaluation report which examines the feasibility of including a pedestrian/bikeway in the proposed I-205 Columbia River Bridge facility. Particular emphasis is placed on the auxiliary uses. We trust that it will be given your serious consideration.

On the strength of this report, a request is hereby made for reconsideration of Federal participation in the proposed pedestrian/bikeway.

We have discussed this latest proposal with the Washington State Department of Highways and have its concurrence.

Very truly yours,

A. E. Johnson
Deputy State Highway Engineer

Enc. (10)

bc F. B. Klaboe
E. S. Hunter
Victor D. Wolfe

RDH:jp/AEJ:ja

OREGON STATE HIGHWAY DIVISION

Location Section

# EVALUATION REPORT
# PROPOSED I-205 COLUMBIA RIVER BRIDGE BIKEWAY

Victor D. Wolfe, Location Engineer

March 1973

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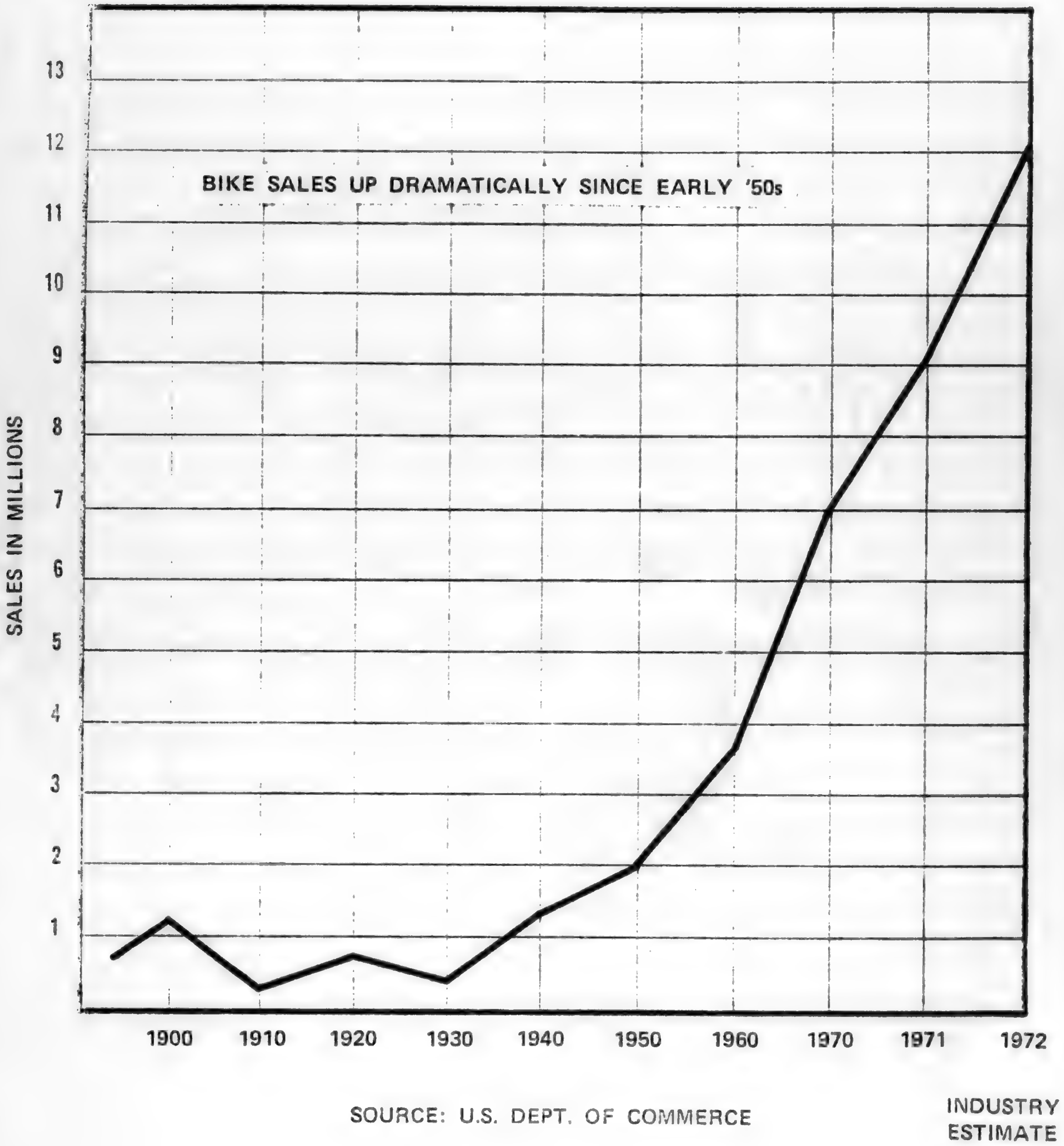


SOURCE: U.S. DEPT. OF COMMERCE

FIGURE 1

# INTRODUCTION

Proliferation of bicycles is an American phenomenon recent enough that conclusive statistical information has not yet been compiled. Some data such as national sales figures and population trends are obtainable. This study deals with the available current material while placing emphasis on qualitative judgments pertaining to proposed construction of bicycle and pedestrian pathways as a part of the I-205 Freeway. An examination is made of the citizen activities leading to local, state and Federal legislation, administrative action and current local planning. Considerations of safety, auxiliary uses and defense contingencies are also brought under study.

## CONCLUSIONS

1. A bicycle/pedestrian path on the I-205 Columbia River Bridge would have extensive use, according to per capita bike usage and growth projections.

2. Potential uses as an emergency ingress and egress for police and medical aid cannot be underestimated. As an access to call boxes and fire control apparatus on the structure and as an emergency egress for the stranded motorist on foot, the bikeway would provide a potential benefit to motorized as well as non-motorized traffic. An additional benefit to the motorist would be the removal of pedestrians and bicyclists from the roadway shoulder.

3. Auxiliary uses of the bikeway would best be realized with a median situate, road-level configuration. This is the location listed as a logical choice by the consultant, Sverdrup & Parcel and Associates, Inc., in the supplementary report titled, "A Pedestrian-Bicycle Path Addition to the Proposed Interstate Route I-205 Columbia River Bridge" and is the number two choice of the State of Washington. It is also the least expensive, but may be subject to some maintenance problems as related in the consultants' conclusions.

4. The bikeway could provide increased safety and efficiency in many maintenance operations, such as spot pickup of litter, surveys and inspections, and would provide a protected position for the manholes necessary for access to apparatus located within the structure, including navigational lights which will be serviced from within the structure.

5. Most of the benefits of the proposed pedestrian/bikeway, such as user safety and projected emergency uses, are intangible from the standpoint of fixation of dollar value. However, taken totally, they establish the reasonable position that a facility of this kind is highly desirable, if not indispensable.

# RECOMMENDATIONS

It is recommended:

1. That a pedestrian/bikeway be constructed on the proposed I-205 Columbia River Bridge.

2. That the location of the bikeway be in the median at roadway level.

3. That the type of construction be of the precast floating slab design as shown in the report, "A Pedestrian-Bicycle Path Addition to the Proposed Interstate Route I-205 Columbia River Bridge" by Sverdrup & Parcel and Associates, Inc., the consulting engineers.

4. That potentials of versatile use be taken into full account in final design of catwalks, luminaire mountings, emergency call boxes, fire control apparatus and access.

## BICYCLE USE TRENDS

### Sales and Growth

In 1972, for the first time in over half a century, national bicycle sales closely approached automobile sales, totaling 12 million, 8.5 million having been sold in 1971.(1) Underlying reasons for the sudden rise in popularity of the bicycle can be found in the simultaneous rise in popularity of aerobic exercise, interest in non-polluting forms of transportation and the discovery of miscellaneous conveniences in parking, garaging, bypassing jammed city traffic and, for some, a closer communication with the environment.

The resurgence of adult bicycling gained impetus on the college campus as convenient personal transportation between classrooms situated beyond quick walking distance. Bicycles became popular at Oregon State University in the 1960's. Now, emerging as a compromise between walking and driving an automobile, adult bicycling finds increasing utility as a commuter mode in the range of approximately one to five miles.(2) Police officers working with the City of Portland Bicycle Detail estimate the total number of bicycles in the city at 176,000.(3)

### Industrial Promotion

The recent introduction of small foreign-built motorcycles in the United States was accompanied by voluminous advertising, promotional literature and press agentry. Films, brochures and pamphlets on safe riding were distributed to potentially interested parties including State Motor Vehicle Departments. Safety pamphlets were presented in language, form and quantity suitable for direct distribution by regulatory agencies. Activities of this kind have not been forthcoming from bicycle manufacturers or distributors.(4) The industry has in fact been taken by surprise and is hard put to meet existing consumer demand. The present enthusiasm appears to have arisen spontaneously in the public domain.

## Future Use

The question arises as to whether present public enthusiasm over bicycling can be expected to wane or whether it is being permanently established. Because the bicycle is suddenly graduating from the category of an expensive toy for American children to a serious means of transport, exercise and recreation for American adults, it could gain a status in American transportation approaching that of Europe and Asia where it has been a basic transportation medium for generations.

## CONCERNED ACTION

### Citizen Action

Citizen groups devoted to bicycle route planning are actively developing master plans in many of our cities. These groups are composed of people with various skills, interests and points of view and usually range from the bicycle enthusiast to concerned citizenry.

It is likely that most meaningful public involvement in bicycle route programs will come from various citizen groups. So far the State Highway Division has under construction four bicycle routes that were developed from plans recommended by citizen groups.

### Administrative and Legislative Action

Only one booklet of a purely promotional nature has become available to this agency, namely, a Federal publication sponsored jointly by the U. S. Department of Transportation and the U. S. Department of the Interior, entitled, "Bicycling for Recreation and Commuting". Pictured in a full page photograph is the President with a group of young cyclists at the completion of a transcontinental tour; a photograph shows Secretary Volpe leading 300 cyclists in a District of Columbia "bike-in"; several members of Congress are pictured astride bicycles as a band plays on the Capitol steps. The intent of the brochure is made plain on Page 6:

> "In early 1971, Secretary of the Interior Rogers C.B. Morton and Secretary of Transportation John A. Volpe made a joint decision to promote bicycling. Interior plans to work on the recreational aspect of bicycling while

Transportation concentrates on bicycles as commuter transportation.

"Secretary Volpe in February, 1971, said, 'It must be our plan to restore some sense of humanism to our downtown streets . . . The city must be a gathering place for people, not vehicles.' The use of bicycles serves to achieve this objective.

"At the inauguration of Transportation Week, May 16, 1971, in Washington, D.C., Secretary Volpe led 300 bicyclists in a 'Bike In.' He outlined in a brief speech what the Department of Transportation intends to do for bicyclists across the nation. He said, '. . . my Department is excited about bicycles . . . We intend to make Washington a "model city" for bicycles.' He declared that 'as far as the District of Columbia is concerned, bicycles have equal rights with automobiles on our city streets.'

"Secretary Volpe said, 'My personal staff and the Federal Highway Administration will explore with the District the possibility of establishing bicycle commuter routes with exclusive lanes--or even streets--set aside for them during rush hours . . . As you all know, the main problem with bike riding is the danger involved. We hope exclusive rights-of-way will solve that problem.' "

Another report by the National Transportation Safety Board entitled, "Special Study, Bicycle Use as a Highway Safety Problem", closes with Recommendation No. 5:

> "In the Department of Transportation's efforts to encourage the use of bicycles for reasons of reduction of traffic congestion and air pollution and promotion of healthful exercise, the National Highway Traffic Safety Administration and Federal Highway Administration be actively involved to assure that safety is given full consideration."(5)

In 1971 the Oregon Legislature passed House Bill 1700, popularly called the "Bicycle Bill", which appropriates one percent of State Highway funds for pedestrian/bikeway construction. The State of Washington passed House Bill 1060, enacted into law in May, 1971 under the title, "Chapter 130 (House Bill No. 1060) HIGHWAYS--CREATION, PRESERVATION, RE-ESTABLISHMENT OF RECREATIONAL TRAILS AND PATHS". The City of Portland, Oregon and the County of Multnomah, Oregon have passed resolutions identical in intent requesting bicycle and pedestrian facilities on the I-205 Freeway. (See Appendix)

This type of administrative and legislative action appears as an outgrowth of widespread interest on the part of bicycling enthusiasts brought into focus by a few dedicated lobbyists and letter writers. Response to questionnaires and testimony at public hearings has revealed that these emissaries speak for more than themselves. (Sample letters in Appendix)

Future Action

A favorite goal of the bicycle groups is ownership registration (already an ordinance in Portland) which is expected to provide a basis for numerical analyses, an aura of self-support, an aid in theft recovery and a general permanency for the movement.

Yet to be heard from is the bicycle industry itself. Once supply catches up with demand, added impetus can be expected from that source.

# INTERIM REGIONAL COMPREHENSIVE PLAN
## Land Use
## Open Space &
## Transportation Elements

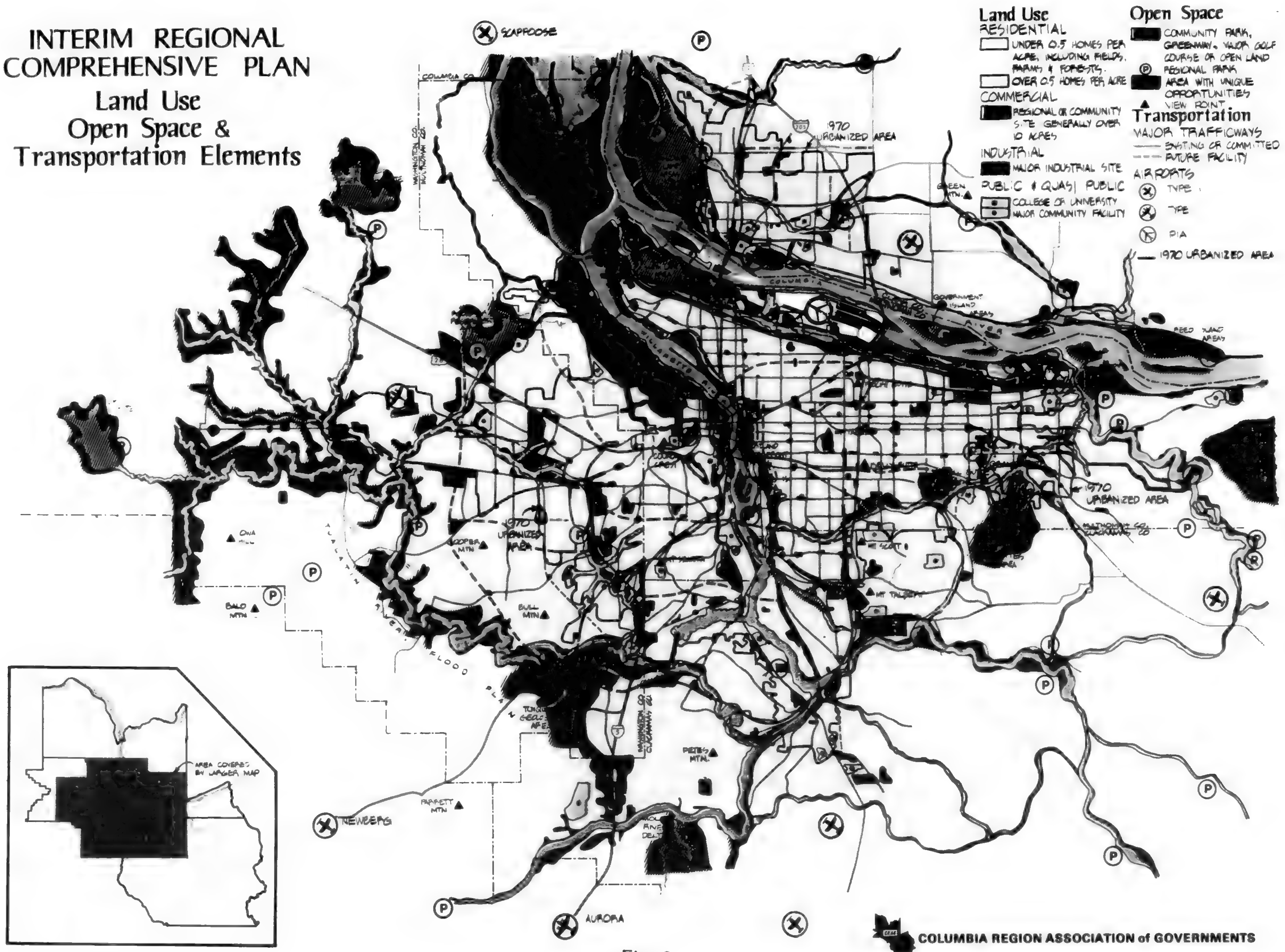

Land Use
RESIDENTIAL
UNDER 0.5 HOMES PER ACRE, INCLUDING FIELDS, FARMS & FORESTS.
OVER 0.5 HOMES PER ACRE
COMMERCIAL
REGIONAL OR COMMUNITY SITE GENERALLY OVER 10 ACRES
INDUSTRIAL
MAJOR INDUSTRIAL SITE
PUBLIC & QUASI PUBLIC
COLLEGE OR UNIVERSITY
MAJOR COMMUNITY FACILITY
Open Space
COMMUNITY PARK, GREENWAY, MAJOR GOLF COURSE OR OPEN LAND
REGIONAL PARK
AREA WITH UNIQUE OPPORTUNITIES
VIEW POINT
Transportation
MAJOR TRAFFICWAYS
EXISTING OR COMMITTED
FUTURE FACILITY
AIRPORTS
TYPE
TYPE
PIA
1970 URBANIZED AREA
SCAPPOOSE
COLUMBIA CO.
WASHINGTON CO.
MULTNOMAH CO.
1970 URBANIZED AREA
GREEN MTN.
GOVERNMENT ISLAND AREAS
COLUMBIA RIVER
WILLAMETTE RIVER
MT SCOTT
MT TALBERT
MULTNOMAH CO.
CLACKAMAS CO.
COOPER MTN
BULL MTN
CHAL HILL
BALD MTN
TUALATIN RIVER FLOOD PLAN
PETES MTN.
PARRETT MTN
NEWBERG
AURORA
AREA COVERED BY LARGER MAP
COLUMBIA REGION ASSOCIATION of GOVERNMENTS

Fig. 2

# USER DEMAND

## Portland

The land use planning map (Figure 2) shows the East Portland area as nearly solid, single residential usage served by commercial zones along the arterials. Bicycles being a virtual part of urban residential living, it is projected that East Portland is the largest reservoir of bicycles and bicycle users in the state of Oregon. Residents in the area have shown considerable initiative in the formulation of committees and study groups leading to formulation of a completed comprehensive bikeway plan.

This is reflected in the Columbia Region Association of Governments' planning for bicycle/pedestrian routes in both Portland and Vancouver, which amounts to an arterial grid in Vancouver connected by the I-5 route and an I-205 route to a gridwork of the city and county routes covering the East Portland area. (Figure 3)

In its preliminary planning, the Port of Portland shows intentions of furnishing the entire south shore area with a system of meandering "foot and bike" paths, one of which would gird the area, and others that would traverse the shore lines of the many ponds and lakes in the park areas. With four proposed connectors across Columbia Boulevard to the East Portland grid, this plan effectively becomes an extension thereof.

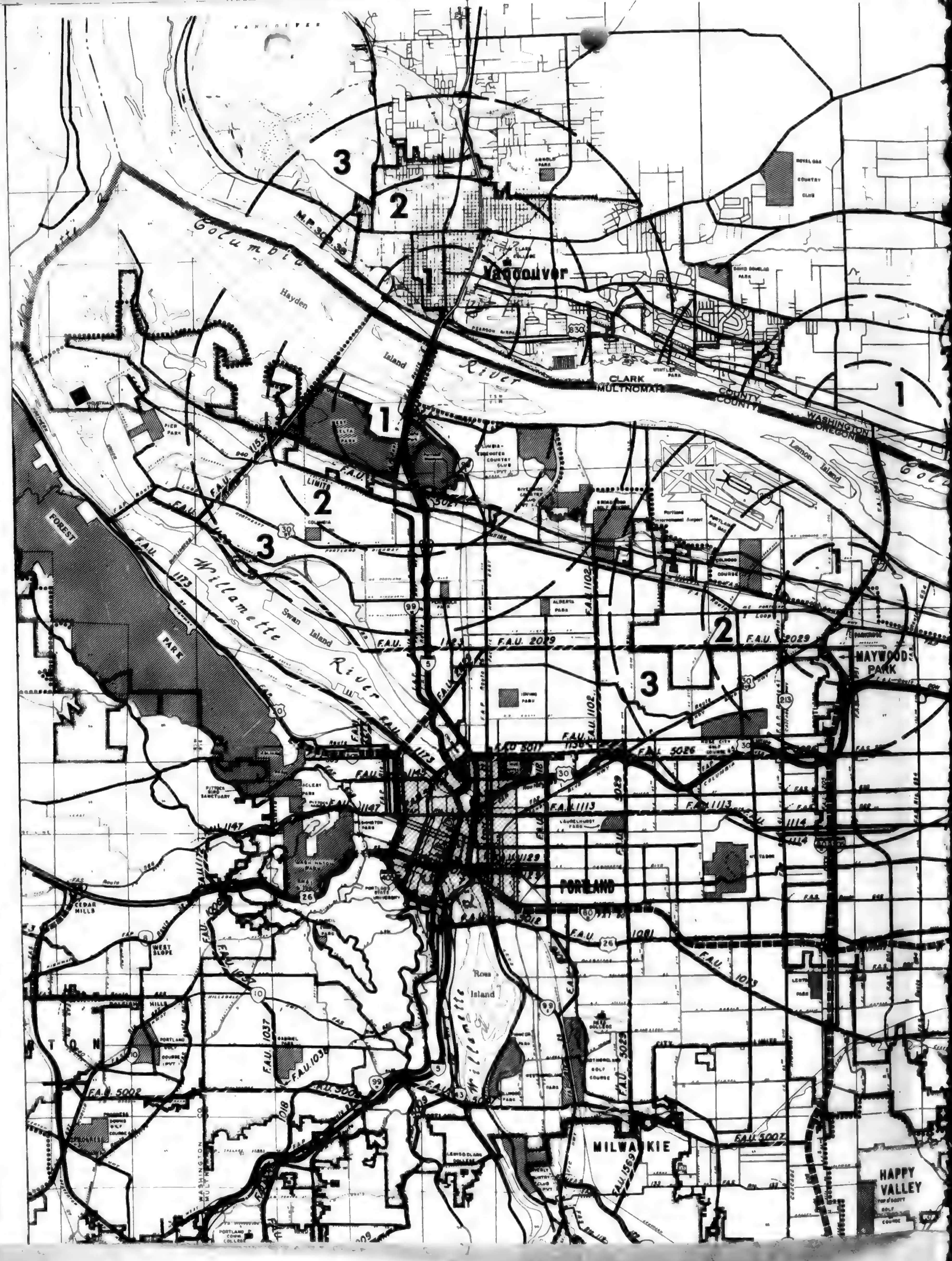
## Vancouver

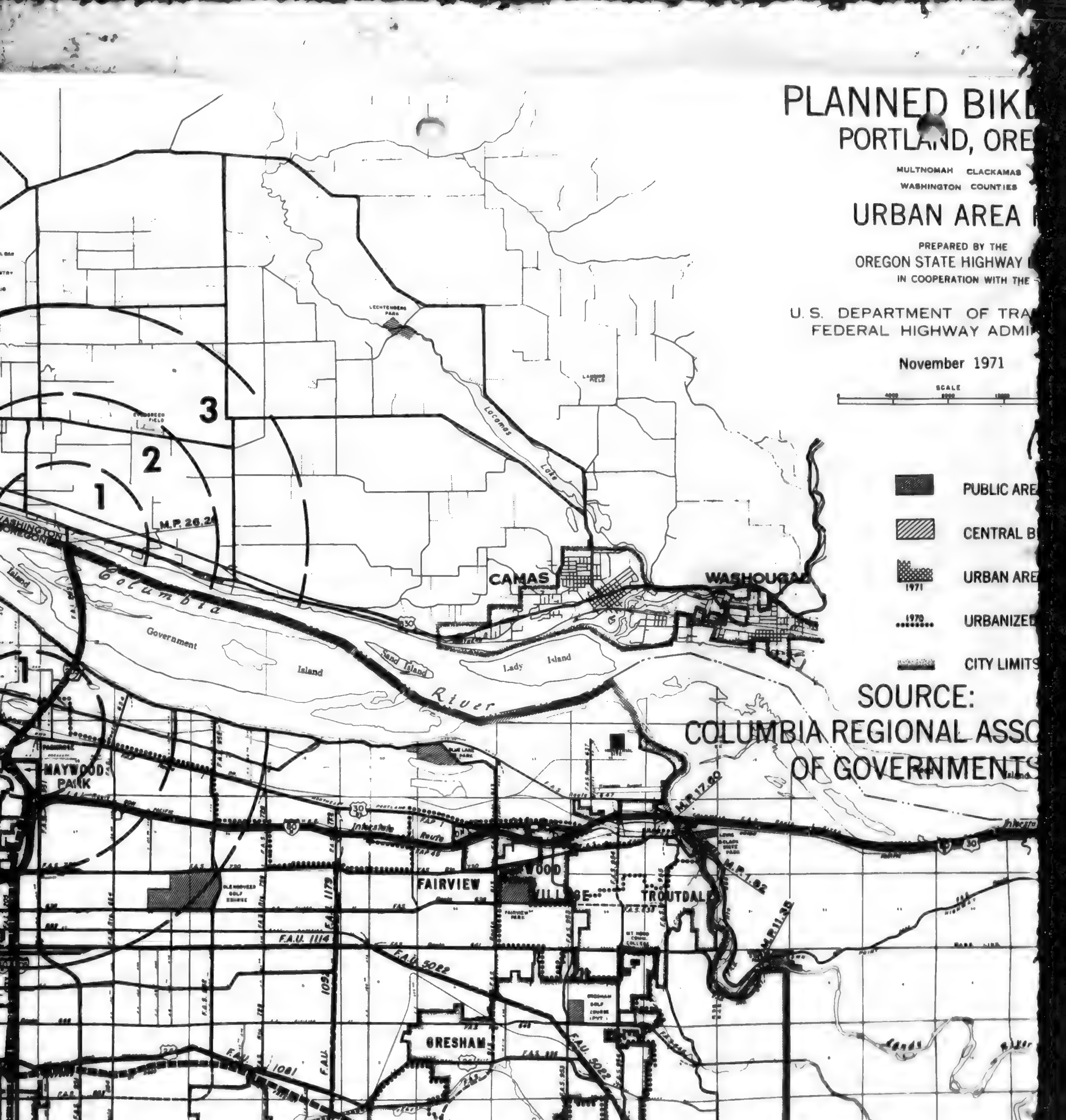
The Vancouver area is growing steadily eastward, the main expansive thrust being modern subdivision housing tracts. Zoning in Vancouver and resultant land use tends to be organized into solid blocks in contrast to the mosaic of Portland land use. One large block of proposed commercial zoning straddles I-205 at its crossing of Mill Plain Road (Figure 2). Other blocks of heavy industrial zoning are located on the north shore of the Columbia, closer to the downtown area. Further eastward, some luxury homes with private yacht moorages line the north shore.

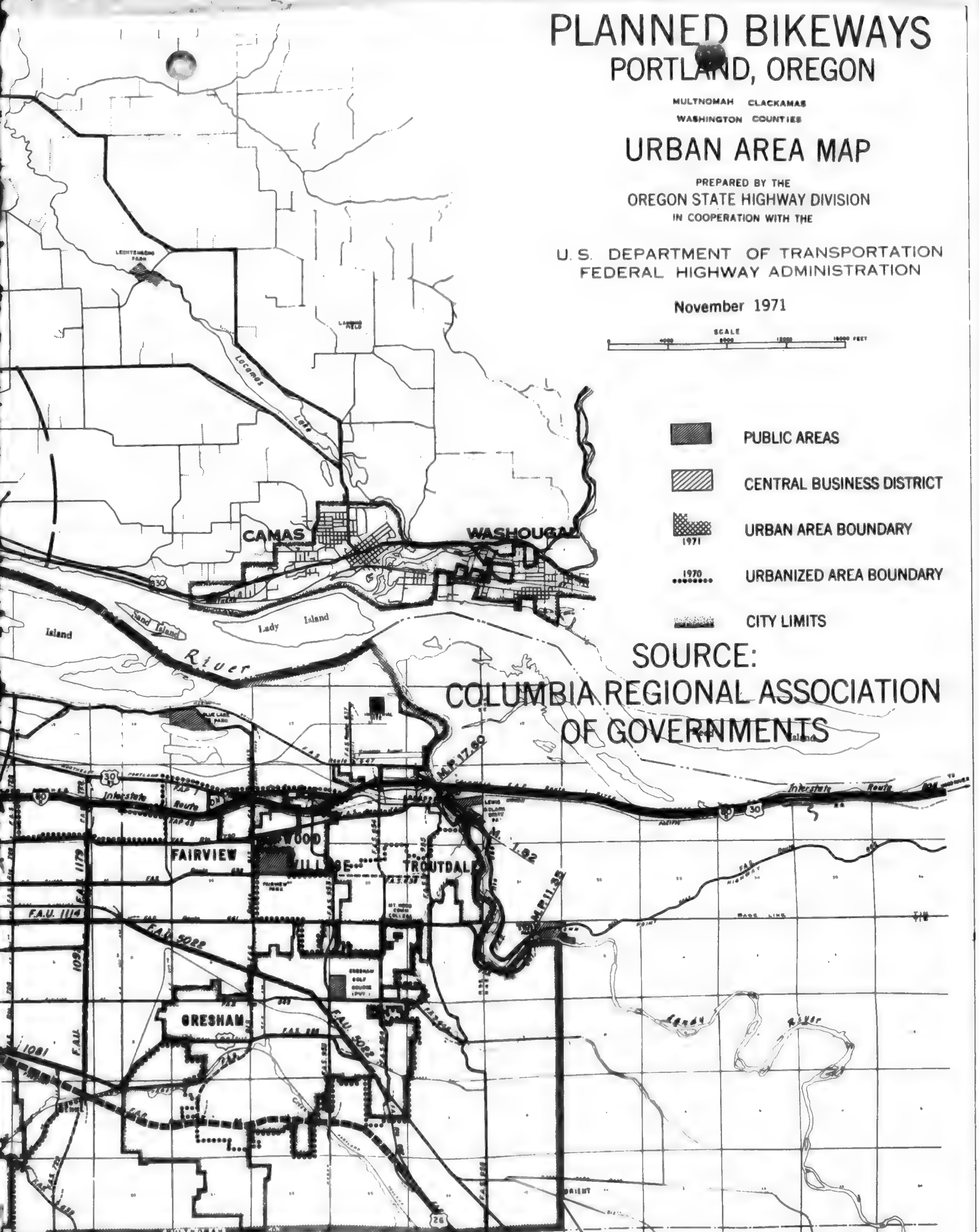
The cities of Vancouver, Camas and Washougal were all included in the Portland metropolitan area studies onward from 1960, both geographically and officially, as was Clark County, Washington. They are all a part of the same economic, social and geographic community. Division by the Columbia River and the state boundary has been no official handicap to mutual-aid performance of emergency services, which have a history of notable effectiveness. Interstate 205 can be expected to provide a closer connection and provide stimulus for residential, commercial and industrial growth on both sides of the river. Residential-to-industrial and residential-to-commercial commuting can be expected in both directions, the subject areas being well within the practical bicycle commuting range of five miles. Over 90,000 bicycles are estimated to be housed in the potential use area based on current population and national averages.

The Figure 3 map shows a portion of the bikeways tentatively planned by the Columbia Region Association of Governments. Other agencies, such as the Portland Bicycle Task Force appointed by the Portland City Council, have many other bike routes planned in addition to those shown. The tentative CRAG plan represents a convenient, comprehensive view of the area planning and is expected to be adopted in the very near future. The City of Portland inventories a total of 105.33 miles of recommended bike routes.(6)

Also shown are radii of one, two and three miles from the end points of the proposed I-205 Bridge and the existing I-5 Bridge. Cost-benefit studies have implied a practical one-way commuting range of approximately five miles.(2) Commuter trips originating within a one-mile radius of the southerly end of either structure would terminate within a three-mile radius of the northerly end of the same structure and vice versa; trips originating within a two-mile radius of either structure would terminate within a two-mile radius of the same structure. The respective structures being over six miles apart, it appears that the existing I-5 facility cannot satisfactorily serve the needs of bicycle commuter traffic for the eastern parts of Portland and Vancouver and only an I-205 facility could be expected to do this.


VANCOUVER
3
2
1
Vancouver
Columbia
River
Hayden
Island
M.P. 301.39
CLARK COUNTY
MULTNOMAH COUNTY
WASHINGTON
OREGON
Lemon Island
1
1
2
3
F.A.U.
Willamette
Swan Island
River
FOREST
PARK
F.A.U. 1123
F.A.U. 2029
F.A.U. 1102
2
3
MAYWOOD PARK
F.A.U. 5017
F.A.U. 5026
F.A.U. 1113
PORTLAND
F.A.U. 1081
F.A.U. 1147
CEDAR HILLS
WEST SLOPE
F.A.U. 1037
F.A.U. 5002
Ross Island
Willamette
F.A.U. 5023
F.A.U. 1569
MILWAUKIE
F.A.U. 5007
HAPPY VALLEY
WASHINGTON
5
99
30
26
10
205


PLANNED BIKE
PORTLAND, ORE
MULTNOMAH CLACKAMAS
WASHINGTON COUNTIES
URBAN AREA
PREPARED BY THE
OREGON STATE HIGHWAY
IN COOPERATION WITH THE
U.S. DEPARTMENT OF TRA
FEDERAL HIGHWAY ADMI
November 1971
SCALE
PUBLIC ARE
CENTRAL B
URBAN ARE
1971
1970
URBANIZED
CITY LIMITS
SOURCE:
COLUMBIA REGIONAL ASSO
OF GOVERNMENTS
1
2
3
WASHINGTON
OREGON
M.P. 26.24
Columbia River
Government Island
Sand Island
Lady Island
Lacamas Lake
CAMAS
WASHOUGAL
MAYWOOD PARK
FAIRVIEW
WOOD VILLAGE
TROUTDALE
GRESHAM
HAPPY VALLEY
Interstate Route
M.P. 17.60
M.P. 1.92
M.P. 11.35
F.A.U. 1114
F.A.U. 5022
F.A.U. 1081
M.P. 3.60
M.P. 16.77
M.P. 0.30
MULTNOMAH CO
CLACKAMAS CO
Sandy River
ORIENT
26
30



# PLANNED BIKEWAYS
## PORTLAND, OREGON

MULTNOMAH CLACKAMAS
WASHINGTON COUNTIES

## URBAN AREA MAP

PREPARED BY THE
OREGON STATE HIGHWAY DIVISION
IN COOPERATION WITH THE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

November 1971

▇ PUBLIC AREAS

▨ CENTRAL BUSINESS DISTRICT

▒ 1971 URBAN AREA BOUNDARY

•••• 1970 URBANIZED AREA BOUNDARY

▒ CITY LIMITS

SOURCE:
COLUMBIA REGIONAL ASSOCIATION
OF GOVERNMENTS

SCALE
0
4000
8000
12000
16000 FEET
CAMAS
WASHOUGAL
Lacamas Lake
Lady Island
Sand Island
Island
River
Interstate Route
FAIRVIEW
WOOD
VILLAGE
TROUTDALE
GRESHAM
M.P. 17.60
M.P. 1.82
M.P. 11.35
M.P. 3.60
M.P. 16.77
M.P. 0.30
F.A.U. 1114
F.A.U. 5022
F.A.U. 1173
F.A.U. 1081
Sandy River
MULTNOMAH
CLACKAMAS
30
80N
26

Fig 3

## AUXILIARY USE

### National Defense

The following quotes from the I-205 Draft Environmental Statement illustrate some of the thinking that has transpired in relation to contingencies of national defense:

> "I-205 will bypass the central city and has therefore been designated the north-south military route in the area."(7)
>
> ""I-205 will provide a routing for National Defense and emergency vehicles. The Columbia River Bridge will provide an alternate crossing of the river during long-term emergencies when I-5 is blocked."(8)

In the event of a national or local disaster involving mass movements on the river structure, or in the event that civilian motor fuel supplies become nil or are rationed, a pedestrian/bikeway system would provide a known facility for non-motorized traffic, leaving the vehicular lanes open for the military. If gasoline were rationed, bicycle traffic would increase markedly.

### Maintenance

Certain maintenance processes would be eased through utilization of a pedestrian/bikeway. Spot pickup of litter and luminaire maintenance could be accomplished with a minimum of interference with high-speed traffic (according to and dependent upon positioning in the final design).

The pedestrian/bikeway would provide a safe working space for bridge inspection teams during routine duty.(9)

Manholes for access to the interior of the box girder systems could be placed in the bikeway instead of in a more hazardous position in the shoulder area. Access to the interior of the box girders is necessary for maintenance of the various wiring, drainage, utility, inspection, and testing systems that would be installed internally. This access would in turn provide access to the partially hollow support structures wherein navigational lighting equipment is proposed to be installed.

The bikeway could provide increased safety and efficiency in surveys, inspections, and most maintenance operations by providing a protected position for the original access.

# PUBLIC SAFETY

## Emergency Aid

Municipal police departments are interested in bikeways and footpaths as emergency ingresses and egresses in the event of complete blockage of traveled motor vehicle lanes. During blockages on long isolated structures, such as the proposed I-205 crossing of the Columbia, some vehicles will expectedly enter the shoulder areas, blocking them also. A pedestrian/bikeway provides an obvious immediate accessibility for the police motorcycle and for all types of ambulances except for dual-wheeled rescue vehicles.

Design proposals for the I-205 Bridge across the Columbia River show an 8-lane facility with 10-foot shoulders accommodating a 70 mph design speed. A complete blockage in all lanes, in both directions, of this 8-lane bridge is expected to be an extremely rare occurrence, nevertheless a possibility. Blockages could be precipitated or aggravated by fog, surface frost, surface ice, unexpected snow or combinations of these. Climatology studies (10) relate a fairly high incidence of fog, while the orientation of humid west winds alternating with sub-freezing east winds in the Columbia Gorge is well known. Early fallen snow, arriving before drivers on the freeway have stopped to fit chains, offers perhaps the greatest threat of total blockage. With the first snowfall of December, 1972 Interstate 5 was blocked in several places between Salem and Portland for virtually the entire afternoon. I-205, as a crossing of the Columbia River additional to the existing I-5 Bridge, is expected to provide increased benefits to emergency vehicle operations because the existing I-5 facility is a drawbridge, subject to being opened at the demand of river traffic, and further subject to mechanical failure, river vessel collision or other major disaster.(11) The consultants, Sverdrup & Parcel and Associates, have recommended that on the I-205 structure some type of call system for emergency use of motorists be provided.(12) In addition to providing an access to stations of the call system for the stranded motorist, a pedestrian/bikeway would provide a refuge from vehicular traffic, a means of safely leaving the structure on foot and a final backup emergency ingress for police and medical aid.

## Engineers' Regard for Public Safety

Of great importance and concern to the engineer is the responsibility for the ultimate safety of the occupants of any major structure. It is difficult to ignore the additional potentialities for public safety inherent in having a pedestrian/bikeway on the I-205 Columbia River structure. Walled off from the traffic lanes, a pedestrian/bikeway provides the only through lane not subject to blockage.

# DESIGN PARTICULARS

## Types of Cyclists and Bikeways

In addition to commuters, three other groups of cyclists are cited in the 1972 Oregon Bikeways Progress Report:

1. School children riding to school, parks and community services.
2. Recreational users on day trips.
3. Long-distance riders averaging 100 to 150 miles per day on tour.

Oregon bikeways are classified in three different categories with regard to their usage and relationship to highways and pedestrian ways.(13)

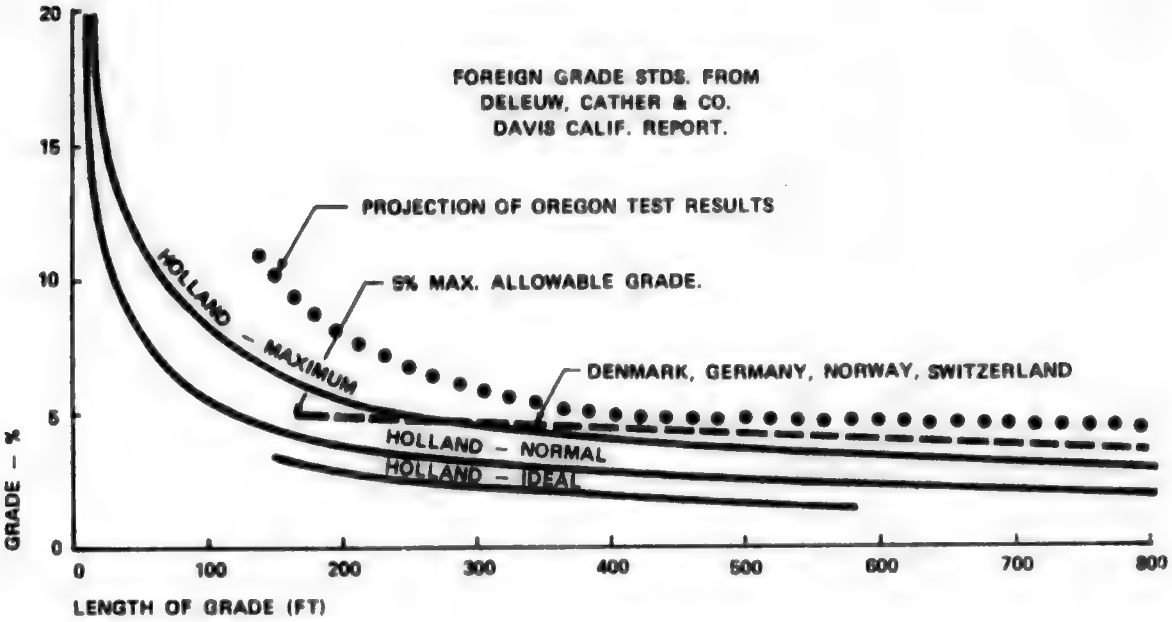
Class I - Physically separated from vehicular traffic, either one-way or two-way with minor pedestrian usage.

Class II - Restricted to bicycles alone, separated from vehicular traffic by a berm, curb or other physical semi-barrier.

Class III - Shared bikeway delineated by signing and striping only. These may be shared with traffic, separated by striping, having been constructed on an extended shoulder, or shared with pedestrian traffic on a widened sidewalk.

All bikeway configurations proposed for the subject bridge would be defined as Class III, shared with pedestrian traffic. Considering the versatility that could be designed into this appurtinance, it might more properly be called a general facility for non-motorized and contingent uses.

Bicycle design and engineering has undergone a steady evolution over the years. The latest major refinement is development and mass production of the ten-speed sprocket system that enables the rider to negotiate steep hills and cruise on level ground at satisfactory speeds, achieving prolonged averages of 10 to 15 miles per hour. Tests with 10-speed bicycles indicate possible use of steeper bikeway grades. (Figure 4)



RELATIONSHIP OF GRADE TO ALLOWABLE LENGTH OF GRADE
EUROPEAN NATIONAL STANDARDS

FIGURE 4

## Eight-foot Minimum Width

Proper width of the bikeway should be in accordance with guidelines set forth in "Footpaths and Bike Routes--Standards and Guidelines", a Highway Division publication. A minimum width of eight feet is recommended on the I-205 Columbia River Bridge. The desirable width for a two-way bikeway, as shown in the guideline, is eight feet. Bikeways shared with pedestrian traffic on land are ordinarily widened to a total width of seven to nine feet. Any width less than eight feet would be impracticable as an access for emergency vehicles other than police motorcycles. Therefore, for greatest utility, a two-way pedestrian/bikeway facility should have a definite minimum width of eight feet. A width of ten feet would allow dual-wheel rescue vehicles to use the facility.

## Location of Bikeway

The consultant has submitted prospective sketches indicating choices of configuration at pavement grade and at a below-decks grade in an outrigger configuration. The latter have been rejected for lack of accessibility, versatility, ease of policing and lack of emergency utility. Remaining, then, are the choices of placement at grade which are obviously at either edge of the structure or in the median. An edge-mounted pathway would offer an unobstructed view of the river from one side of the bridge for bicyclists and pedestrians but would not be as versatile from a maintenance and emergency access standpoint. If luminaires are to be mounted on median barriers as discussed in the consultant's preliminary design report, a median-situate pedestrian/bikeway would provide an easy access to the luminaires. Emergency access to both northbound and southbound traffic lanes would be facilitated. Aesthetic considerations are not overly compromised in the median configuration.

Eye level of the bicyclist should be above the tops of most automobiles, allowing a distant view in any direction. Lacking would be a view straight down to the river.

Drivers are conditioned to expect stalled vehicles parked on an outside shoulder, but the car that comes to grief on an inside shoulder is in proximity to the highest speed lanes. A median location for a pedestrian/bikeway would provide a safeguard for the stranded motorist of both directions that chances to become stalled on the high-speed shoulder. Emergency call stations could be located on the pedestrian/bikeway and also on the outside barriers for complete coverage of the structure.

## Adjacent Walls

As shown in Figure 6 and Plates 1 and 2 of the report by the consultants, Sverdrup & Parcel and Associates, Inc., titled, "Supplemental Studies for a Pedestrian-Bicycle Path on the Proposed Interstate Route I-205 Columbia River Bridge", the pedestrian/bikeway would be separated from vehicular traffic by a solid impact wall approximately three feet high with an additional metal railing above the wall.

In the lower illustration of Figure 6, consultants' report, an additional outrigger wall is obviated. It is recommended that the metal railing extending above the solid wall be designed to facilitate the crossing of the wall on foot by persons of normal agility, and the handing across the wall of a litter patient from the shoulder area to the pedestrian/bikeway.

## ALTERNATES

### Non-Action

Non-action, i.e., the absence of a facility for non-motorized traffic, will force regulatory agencies into several situations of negative choice, some having characteristics of the multiple dilemma:

1. Non-motorized traffic will either be tolerated on the freeway shoulder or be banned by law.
2. The stranded motorist will be forced into a completely passive role, awaiting aid as it routinely arrives. The exposed shoulder would provide his only refuge from high-speed traffic. The motorist stranded on the high-speed median shoulder would be in a particularly compromising position.
3. The existing bikeway on the I-5 Columbia River Bridge would be out of range for daily commuting from east Vancouver to east Portland. The only mode remaining for commuting non-motorized traffic would be that it become motorized, i.e., that some type of common carrier for bicycles commence operations on the bridge.
4. The advantages of safety, access and convenience, as applied to matters of emergency operations, maintenance, inspection and potentials of national defense, as outlined in this report, would be forfeited.

## Design Alternates

Continual reference will now be made to the consultants' (Sverdrup & Parcel and Associates, Inc.) report, "A Pedestrian-Bicycle Path Addition to the Proposed Interstate Route I-205 Columbia River Bridge". The consultant has noted that on a structure of this length (1.46 mile), a great many partial crossings and returns can be expected (Page 6). The point is well taken. It follows that two-way facilities are the more practicable from a service standpoint than one-way. The dual five-foot wide, one-way concept is thus vertually ruled out, since it also cancels out several other previously discussed auxiliary possibilities such as emergency access of an ambulance. (Multiple uses are discussed in the consultants' report, Page 12)

Alternate pedestrian/bikeway configuration possibilities are narrowed to three, listed with estimated cost and construction type alternates:

1. A dual two-way facility on each side of the structure, $7,760,000 (precast strut supported); $6,470,000 (integral); $6,840,000 (precast, post-tensioned).
2. A two-way facility on one side of the structure only, $3,800,000 (integral); $4,020,000 (precast, post-tensioned); $4,570,000 (precast, strut supported).
3. A median-situate two-way facility, $2,310,000 (slab-type construction); $3,510,000 (integral).

Each of these two-way paths would be eight feet wide. Costs are from table, Page 14, consultants' report. Integral paths are shown in Figure 3 and Figure 6, consultants' report. The post-tensioned cantilever concept and strut-supported concept of precast paths are detailed on Plate 1, consultants' report.

In making a final determination between the three alternates, utility and service advantages must be weighed against construction cost and design attributes of the structure.

Alternate 1 offers the highest service potential and largest capacity, for the greatest cost, but is not recommended, costs over six million dollars being considered prohibitive.

Alternate 2, recommended as the optimum choice by the consultant, if located on the west side of the structure would lack multiple use capabilities in terms of service to the northbound lanes. Symmetry of the total structure is an impossibility, detracting from the appearance of the structure. The strut-supported mode of construction, in addition to being comparatively expensive, could have additional adverse effects on the appearance of the bridge.

Alternate 3, suggested as the logical choice by the consultant, would have multiple-use capabilities in terms of service to northbound and southbound lanes equally. With the median location, symmetrical structure design is possible if the precast slab mode of construction is utilized. (See consultants' discussion of structural advantages and limitations, Pages 6, 7 and 8; also, Figure 6.)

The difference in construction cost between the precast construction and the integral construction of the median-located pedestrian/bikeway, amounting to $1,200,000, is deemed decisive. Therefore, in partial agreement with the consultant, it is recommended that the final choice be the median road-level location, employing the added precast slab type of construction.

# NOTES

(1) Oregon Highway Division. *Bikeways Progress Report, 1973.* P.1.

(2) Ibid. (Establishes the 5-mile range on a cost-benefit basis.) P.5.

(3) Hansen, Robert J. *Preliminary Study of Bicycle Facilities*, Department of Public Works, Portland, Oregon. P.4.

(4) Nearly all the handout literature on bicycling pertains to rider safety and is directed to children. Several pieces of this type were provided by the Oregon Motor Vehicles Division and are listed in the References section.

(5) *National Transportation Safety Board Report No. NTSB-HSS-72-1.* Adopted Apr. 5, 1972.

(6) Hansen, Robert J. *Op. Cit.* Appendix E.

(7) Department of Transportation, Federal Highway Administration. *I-205 Draft Environmental Impact Statement.* P.3-72. Refers in turn to *Portland-Vancouver Metropolitan Transportation System Interim Report, I-205 Location,* by Technical Advisory Committee, Oct. 1964.

(8) Ibid. P.2-17

(9) U.S. Department of Transportation, Federal Highway Administration. *Bridge Inspector's Training Manual.* Bureau of Public Roads corrected reprint 1971. P.3-8.

(10) *I-205 Draft Environmental Impact Statement.* P.3-15. (See also Appendix D.)
Sverdrup & Parcel & Associates. *Preliminary Design Report for Proposed Interstate Route I-205, Columbia River Bridge.* Apr. 1971. P.3.

(11) *I-205 Draft Environmental Impact Statement.* P.3-72.

(12) Sverdrup & Parcel & Associates. *Preliminary Design Report for Proposed I-205 Columbia River Bridge.* Apr. 1971. P.73.

(13) *Oregon Bikeway, Progress Report.* P.12.

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Oregon Motor Vehicles Division. *Community-School Bicycle Safety Program.* Salem, Oregon, Nov. 1971 (last printing), 27 p. Safety Syllabus.

Oregon Motor Vehicles Division. *Basic Bicycle Rules If You Ride a Bicycle.* Salem, Oregon, Sept. 1971 (last printing) Safety Folder.

Imagination, Inc. *10 Little Bike Riders.* Co-sponsored by Safety Education Section, Traffic Division, Chicago Police Dept. & the American National Bank and Trust Company of Chicago, n.d.

Employers Insurance of Wausaw. *A Tale of Two Bike Riders.* Wausaw, Wisconsin, 1967.

Schwinn Bicycle Company. *Bicycle Safety - 12 Rules of the Road.* 1970.

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U.S. Department of Transportation, U.S. Department of the Interior. *Bicycling for Recreation and Commuting.* U.S. Government Printing Office, 1972.

# APPENDIX

OREGON LEGISLATIVE ASSEMBLY—1971 REGULAR SESSION

## Enrolled

# House Bill 1700

Sponsored by Representatives STATHOS, THORNTON, HENDERSON, Senator WINGARD, Representatives CROTHERS, DENSMORE, HANNEMAN, KENNEDY, LANG, PAULUS, ROBERTS

CHAPTER 376

## AN ACT

Relating to ways for public travel; creating new provisions; and amending ORS 366.515, 366.525 and 366.790.

**Be It Enacted by the People of the State of Oregon:**

**SECTION 1.** Section 2 of this Act is added to and made a part of ORS chapter 366.

**SECTION 2.** (1) Out of the funds received by the commission or by any county or city from the State Highway Fund reasonable amounts shall be expended as necessary for the establishment of footpaths and bicycle trails. Footpaths and bicycle trails shall be established wherever a highway, road or street is being constructed, reconstructed or relocated. Funds received from the State Highway Fund may also be expended to maintain such footpaths and trails and to establish footpaths and trails along other highways, roads and streets and in parks and recreation areas.

(2) Footpaths and trails are not required to be established under subsection (1) of this section:

(a) Where the establishment of such paths and trails would be contrary to public safety;

(b) If the cost of establishing such paths and trails would be excessively disproportionate to the need or probable use; or

(c) Where sparsity of population, other available ways or other factors indicate an absence of any need for such paths and trails.

(3) The amount expended by the commission or by a city or county as required or permitted by this section shall never in any one fiscal year be less than one percent of the total amount of the funds received from the highway fund. However:

(a) This subsection does not apply to a city in any year in which the one percent equals $250 or less, or to a county in any year in which the one percent equals $1,500 or less.

(b) A city or county in lieu of expending the funds each year may credit the funds to a financial reserve or special fund in accordance with ORS 280.100, to be held for not more than 10 years, and to be expended for the purposes required or permitted by this section.

(4) For the purposes of this chapter, the establishment of paths and trails and the expenditure of funds as authorized by this section are for highway, road and street purposes. The commission shall, when requested, provide technical assistance and advice to cities and counties in carrying out the purpose of this section. The division shall recommend construction standards for footpaths and bicycle trails. The division shall, in the manner prescribed for marking highways under ORS 483.040, provide a uniform

system of signing footpaths and bicycle trails which shall apply to paths and trails under the jurisdiction of the commission and cities and counties. The commission and cities and counties may restrict the use of footpaths and bicycle trails under their respective jurisdictions to pedestrians and nonmotorized vehicles.

(5) As used in this section, "bicycle trail" means a publicly owned and maintained lane or way designated and signed for use as a bicycle route.

Section 3. ORS 366.515 is amended to read:

366.515. (1) The highway fund shall be expended under the jurisdiction of the commission.

(2) Except as provided in ORS 367.236 and 366.735, the commission shall set aside from the highway fund, in the following order:

(a) An amount sufficient for the salaries and expenses of the highway department.

(b) A sufficient amount to cover the cost of operating and maintaining state highways which have been constructed or improved.

(c) Sufficient funds to meet the Federal Government appropriation and requirements of sections 6 and 8 of the Act of July 11, 1916, 39 Stat. 355, entitled "An Act to provide that the United States shall aid the states in the construction of rural post roads and for other purposes," or any federal appropriation that may be provided.

(d) The remainder shall be used for any of the purposes authorized by law.

(3) All the highway fund not otherwise specifically applied shall be expended by the commission in its discretion **, except as required by section 2 of this 1971 Act,** on the construction, maintenance, betterment or pavement of roads and highways within the state.

Section 4. ORS 366.525 is amended to read:

366.525. There shall be and hereby are appropriated out of the highway fund annually such sums of money as will equal 20 percent of all moneys credited to the State Highway Fund by the State Treasurer between July 1 of any year and June 30 of the following year and which have accrued from funds transferred to the highway fund by the State Treasurer under ORS 481.950, paragraph (b) of subsection (2) of ORS 484.250 and ORS 767.635. The appropriation shall be distributed among the several counties for the purposes [*now*] provided by law.

Section 5. ORS 366.790 is amended to read:

366.790. Money paid to cities under ORS 366.785 to 366.820 shall be used only for the purposes stated in section 3, Article IX of the Oregon Constitution and **the statutes enacted pursuant thereto including section 2 of this 1971 Act**.

## CHAPTER 130

## [House Bill No. 1060]

## HIGHWAYS--

## CREATION, PRESERVATION, REESTABLISHMENT OF RECREATIONAL TRAILS AND PATHS

AN ACT Relating to public highways; and creating new sections.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF WASHINGTON:

NEW SECTION. Section 1. (1) No limited access highway shall be constructed that will result in the severance or destruction of an existing recreational trail of substantial usage for pedestrians, equestrians or bicyclists unless an alternative recreational trail, satisfactory to the authority having jurisdiction over the trail being severed or destroyed, either exists or is reestablished at the time the limited access highway is constructed. If a proposed limited access highway will sever a planned recreational trail which is part of a comprehensive plan for trails adopted by a state or local governmental authority, and no alternative route for the planned trail exists which is satisfactory to the authority which adopted the comprehensive plan for trails, the state or local agency proposing to construct the limited access highway shall design the facility and acquire sufficient right of way to accommodate future construction of the portion of the trail which will properly lie within the highway right of way. Thereafter when such trail is developed and constructed by the authority having jurisdiction over the trail, the state or local agency which constructed the limited access highway shall develop and construct the portion of such trail lying within the right of way of the limited access highway.

(2) Where a highway other than a limited access highway crosses a recreational trail of substantial usage for pedestrians, equestrians, or bicyclists, signing sufficient to insure safety shall be provided.

(3) Where the construction or reconstruction of a highway other than a limited access highway would destroy the usefulness of an existing recreational trail of substantial usage for pedestrians, equestrians, or bicyclists or of a planned recreational trail for pedestrians, equestrians, or bicyclists incorporated into the comprehensive plans for trails of the state or any of its political subdivisions, replacement land, space, or facilities shall be

provided and where such recreational trails exist at the time of taking, reconstruction of said recreational trails shall be undertaken.

NEW SECTION. Sec. 2. Facilities for pedestrians, equestrians, or bicyclists shall be incorporated into the design of highways and freeways along corridors where such facilities do not exist upon a finding that such facilities would be of joint use and conform to the comprehensive plans of public agencies for th development of such facilities, will not duplicate existing o proposed routes, and that safety to both motorists and pedestrians, equestrians, and bicyclists would be enhanced by t segregation of traffic.

In planning and design of all highways, every effort shall made consistent with safety to promote joint usage of rights of w for trails and paths in accordance with the comprehensive plans public agencies.

Passed the House May 3, 1971.
Passed the Senate April 30, 1971.
Approved by the Governor May 18, 1971.
Filed in Office of Secretary of State May 20, 1971.

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☐ INSPECT.
RESOLUTION
FILE — COPY TO HARRIS - ORIG TO SHARON
ANSWER

BEFORE THE BOARD OF COUNTY COMMISSIONERS FOR

MULTNOMAH COUNTY, OREGON

In the Matter of Requesting a Hearing )
Concerning the Provision for PEDESTRIANS )
and BICYCLES Within the RIGHTS-OF-WAY of )
INTERSTATE HIGHWAYS )

The above-entitled matter is before the Board to consider requesting the Oregon State Highway Commission to hold a public hearing concerning the need for facilities for pedestrians and bicycles within the rights-of-way of interstate highways; and it appearing to the Board that:

WHEREAS, there exists a need for varied facilities of all types for transportation within the total system; and

WHEREAS, all freeways, and specifically I-205 and the Columbia River Bridge, serve as uninterrupted links across many neighborhoods and could have great importance as elements of a pedestrian-bicycle pathway system; and

WHEREAS, Chapter 376, Oregon Laws 1971, requires the State Highway Commission to spend reasonable amounts of its budget on bicycle trails and footpaths; and

WHEREAS, the State Highway Commission is considering review of its policy on location of transportation facilities; and the Board being fully advised in the premises, it is therefore

RESOLVED, DECLARED AND ORDERED that the Chairman of the Board of County Commissioners request the Oregon State Highway Commission to hold a public hearing to consider policy regarding the location of pedestrian-bicycle paths within the rights-of-way of interstate freeways.

January 13, 1972

BOARD OF COUNTY COMMISSIONERS
MULTNOMAH COUNTY, OREGON

By M. JAMES GLEASON
Chairman

(SEAL)

APPROVED AS TO FORM:

DESMOND D. CONNALL
District Attorney for
Multnomah County, Oregon

By PAUL G. MACKEY
Paul G. Mackey
Deputy District Attorney

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BEFORE THE BOARD OF COUNTY COMMISSIONERS FOR

MULTNOMAH COUNTY, OREGON

C-37a-71

In the Matter of Requesting Inclusion )
of Bicycle and/or Pedestrian Paths in )
Conjunction with the I-205 Freeway. )

## RESOLUTION

The above-entitled matter is before the Board to consider the adoption of the above-stated request; and

WHEREAS, Multnomah County has undertaken a program to design and implement a comprehensive local bicycle and pedestrian path system; and

WHEREAS, it has become apparent, as a result of this study, that there is a need for a major north-south path in the vicinity of the I-205 Freeway; and

WHEREAS, such a path is necessary in order to provide a vital connecting link in the over-all path system; and

WHEREAS, the explicitly stated policy of the Federal Highway Administration is to encourage multiple uses of highway rights-of-way to include, specifically, bicycle and pedestrian trails, it is therefore

RESOLVED by the Board of County Commissioners of Multnomah County that State and Federal Highway authorities be requested to include bicycle and/or pedestrian paths in conjunction with the I-205 Freeway.

December 5, 1972

BOARD OF COUNTY COMMISSIONERS
MULTNOMAH COUNTY, OREGON

(SEAL)

By M. JAMES GLEASON
Chairman

APPROVED AS TO FORM:

CHARLES S. EVANS
Charles S. Evans
County Counsel for
Multnomah County, Oregon

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DEC 20 1972
Multnomah County Planning Comm.

# RESOLUTION NO. 31154

WHEREAS, The City of Portland has undertaken a program to design and implement a comprehensive local bicycle and pedestrian path system; and

WHEREAS, it has become apparent, as a result of this study, that there is a need for a major north-south path in the vicinity of the I-205 Freeway; and

WHEREAS, such a path is necessary in order to provide a vital connecting link in the overall path system; and

WHEREAS, the explicitly stated policy of the Federal Highway Administration is to encourage multiple uses of highway rights-of-way to include, specifically, bicycle and pedestrian trails;

THEREFORE, be it resolved by the Portland City Council that State and Federal highway authorities be requested to include bicycle and/or pedestrian paths in conjunction with the I-205 Freeway.

Adopted by the Council

DEC 7 1972

George Yerkovich
Auditor of the City of Portland

Lloyd Anderson, Commissioner
WSL:bg
11/30/72

WASHINGTON STATE
HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS

Highway Administration Building
Olympia, Washington 98504 (206) 753-6000

Daniel J. Evans - Governor
G.H. Andrews - Director

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FOR

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cy Hunter
Hall Hart
1-30-73

January 23, 1973

Mr. A. E. Johnson
Assistant State Highway Engineer - Construction
State Highway Division
Highway Building
Salem, Oregon 97310

RE: SR 205 Columbia River Bridge
Bicycle Path

Dear Mr. Johnson:

We have reviewed the report on the subject item, prepared by Sverdrup and Parcel, transmitted by Mr. Hart's letter of January 5. We believe the report adequately covers and evaluates the alternatives for location of the trail. Our initial preference for location would be the Suspended Path, attached edge mounted, on the west side, depicted in Figure 7, at a cost of $2.59 million. We believe that the improvement to the environment of the trail users, in terms of reduced noise and vehicular traffic impact and improved air quality, offset the increased danger of unobserved "muggings", etc. Even though the pedestrian's view would be somewhat more restricted, traffic itself would not allow a reasonable view to the east from roadway level anyway. It would also appear this location may offer more potential for some maintenance functions.

To summarize our selection of the alternates contained in the study, we list here our order of preference.

KLABOE

(1) Figure 7, Precast outside on west with rail protection only. (not screened)

(2) Figure 6, Precast in the median.

(3) Figure 3, West side only.

With respect to that portion of the report outlining the alternates for access ramps to the bridge, we feel that consideration should be given to using a spiral ramp instead of the ramp as proposed to get from the bridge down to SR14 vicinity. From an aesthetic standpoint, it would seem that a spiral ramp located between the piers on the centerline of Pier 3 would be far more attractive than the ramp as shown on Plate 3.

John N Rupp [illegible] Harold [illegible] Baker [illegible] V H Parker Lorna Ream Lorenz Goetz

If you have strong preferences which run contrary to ours, however, we are willing to be guided by your final judgment, and are more interested in adding our strong support to the need for this pedestrian bicycle capability on the structure, in some fashion.

We agree it wise that a supporting package which can be jointly transmitted to Federal Highway Administration for addition of this feature, with FAI participation, should be developed by your organization, and we stand ready to assist you in any way that you desire. Attached for your use in preparation of this material, is data from Clark County of Washington, including a letter from Mr. T. Jenkinson, Director of the Regional Planning Council, an abstract from their Bikeway Master Plan, and a map defining the comprehensive bicycle system, with priorities on that system identified. It would appear that a strong case could be developed for benefits of this addition, above the obviously recreational potential. We must, of course, design this transportation unit for the 20-year design period in which the projected growth in Washington and Oregon would make it apparent that considerable commuter value may be derived from the bicycle features on this bridge. It would also appear that benefits would be available for utilizing the pedestrian addition as a refuge and walkway for travelers with stalled vehicles and for maintenance activities on the structure itself.

Again we say, we will be glad to participate in preparing of any necessary material. If you need additional data, please advise.

Very truly yours,

G. H. ANDREWS
Director of Highways

By: W. M. FOSTER
Assistant Director
of Highway Development

GHA
WMF:nb

Attachment
cc: Andrews
Carroll

COUNTY COMMISSIONERS
M. JAMES GLEASON, Chairman
L. W. AYLSWORTH
BEN PADROW
DONALD E. CLARK
MEL GORDON

**Multnomah County Oregon**

PLANNING COMMISSION

(503) 248-3043 • 1107 S. W. 4th AVENUE • PORTLAND, OREGON 97204

May 9, 1972

Oregon State Highway Department
Salem, Oregon 97310

Gentlemen:

The Multnomah County Planning Commission would like to see bicycling and pedestrian facilities incorporated into the design of the I-205 Columbia River Bridge. IF such facilities are not made an integral part of the bridge at the time of its construction, it will be virtually impossible to obtain them at a later date.

The Multnomah County Planning Commission staff is currently involved in a study designed to locate bikeways, and pedestrian paths in Multnomah County. One product of this study is an appreciation of the importance of acquiring pedestrian and bicycle access across the I-205 Columbia River Bridge. The final design of out bikeway system will most vertainly provide direct access to such a river crossing. This access to the crossing would not simply be something tacked on as an afterthough, but would, instead, be an integral part of a comprehensive system. Be assured that bicycle and pedestrian facilities on the bridge would not come to a dead end on the southern end of the bridge.

The Columbia River South Shore Study, undertaken in conjunction with the Port of Portland, is recommending an increased recreational use of the river and slough areas, and is proposing the creation of a system of paths which would offer excellent access to the I-205 bridge. Further, this improved area would serve as an incentive to cause Washington hikers and bicyclists to cross the river, employing non-motorized means of transportation.

At the present time, a Multnomah County resident desiring to cross the Columbia River must either utilize some means of motorized transportation, or go to considerable length and inconvenience to use the meager facilities offered on the I-5 Columbia River Bridge. The addition of a crossing on the I-205 bridge would place a path for non-motorized traffic between Oregon and Washington much closer to the bulk of the population in Multnomah County. In addition, such a route would serve to open our entire non-motorized circulation systems northward, instead of confining them to the natural limits imposed by the Columbia River.

Federal transporation officials have evidenced a clearly defined and publicy enunciated policy toward the creation of trail facilities in conjunction with highways. F. C. Turner, Federal Highway Administrator, issued a directive on August 12, 1971, which stated in part:

> There are times when in the planning of a highway it is possible to include in the highway right-of-way a walking or bicycle trail that would be of significant benefit to the community. This would be especially true when the trail along the highway serves as a connecting link between a larger system of trails running through the community.
>
> In view of the above, trails proposed within highway rights-of-way should be given favorable consideration where an important public need will be served and where conditions are appropriate. This policy is in accord with recent statements by Secretary Volpe and myself urging the development of trails for hiking, bicycling, and equestrian use.
>
> In all cases where we have the 3-C planning operation in progress, consideration should be given to including trails as part of the areawide transportation plan. We are seeking all possible ways to utilize those transpotation modes or mixtures of several modes which will provide the most efficient and acceptable service.

We submit that there is no more appropriate location in the nation for such construction than on the I-205 Columbia River bridge. Oregon and Washington are the only two States in this union which have funded statewide bicycle systems.

Michael Lash, Director of Environmental Policy for the Federal Highway Administration, elaborated upon this trails policy in June, 1971. He said:

> "The time is ripe to explore fully the extent to which the highway program can assist in the development of trails either by including trails as an integral part of highway projects or by close coordination of highway programs with programs for the construction of trails.

> "Despite the problems that remain to be solved, the climate today is far more favorable than ever before for considering trails within highway rights-of-way. Public policy at the State and Federal levels has changed a great deal in the past five to ten years. The stress of making highway improvements compatible with community development plans and on protecting and enhancing the environment creates a greater receptivity to considering trails as an integral part of highway projects."
>
> "There are several provisions in Federal highway law that permit the use of Federal funds for either walking trails or bicycle paths when included as part of the initial construction project."
>
> "In conclusion, the time has never been better for groups interested in promoting trails within highway rights-of-way to find an open mind on the subject on the part of highway officials. Good opportunities to include trails in new highway projects should be spotted early and brought to the attention of State Highway Departments."
>
> "There seems little doubt that the public desire for pleasant walking trails and bicycle paths is increasing. The highway program can help meet some of this need."

It is difficult to imagine a more precisely predicated statement of policy than than drawn by Mr. Turner and Mr. Lash. They have quite explicity outlined a Federal commitment toward the establishment of pedestrian and bicycling facilities in association with highways.

The strength of this commitment is so substantial that an investigation of the entire length of I-205 with an eye toward establishing such facilities is certainly appropriate. We ask that the policy which has been so explicity presented by Federal officials now be followed.

Very truly yours,

MULTNOMAH COUNTY PLANNING COMMISSION
Robert S. Baldwin, Planning Director
Cliff Harris
Cliff Harris, Urban Planner

CH:md

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**EXECUTIVE DEPARTMENT**

**EMERGENCY SERVICES DIVISION**

8 CAPITOL BUILDING • • • • • • SALEM, OREGON 97310

TOM McCALL
GOVERNOR

CLEIGHTON PENWELL
Director

December 21, 1972

Mr. James D. McClure
Bicycle Route Engineer
Location Section
Oregon Dept. of Transportation
Highway Building
Salem, OR 97310

Dear Mr. McClure:

Recently Mr. Lee Doss of the Highway Division visited with me to explore the possible secondary usage of bikeways as emergency access routes. In particular, his interest centered on the proposed Interstate Route 205.

After much consideration of this most interesting approach, I am of the opinion that all future bikeways should receive some thought as to their possible value as an emergency access route. It is, of course, realized that all bikeways will not necessarily prove of value in this regard. However, it would seem that those bikeways bounding on heavy trafficked routes could provide access for emergency vehicles. This approach would prove its worth espicially during peak traffic hours.

Thank you for this opportunity to express my opinion. I will be most happy to explore this avenue approach in more detail at your convenience.

Sincerely,

Herbert L. Hirst

Harvey L. Latham
Administrator

By: Herbert L. Hirst
Field Coordinator

RECEIVED
DEC 22 1972
LOCATION SECTION

HLL-HLH/gs

DIST. 4
REC'D DEC 18 1972
DIST. SECY

**REGIONAL PLANNING COUNCIL OF CLARK COUNTY**

2400 "T" STREET
VANCOUVER, WASHINGTON 98661
PHONE 1 206 699-2361
TOM JENKINSON PLANNING DIRECTOR

December 15, 1972

Mr. Richard Carroll, District Engineer
Washington State Department of Highways
P. O. Box 1717
Vancouver, Washington

Dear Dick:

Regional Planning Council has previously written on behalf of the inclusion of a bicycle and pedestrian route on the I-205 Columbia River Bridge. (See letters of May 23, 1972, to Mr. George Andrews, Washington State Highway Department, and May 24, 1972, to Department of Transportation, State of Oregon, Attn: Dorland E. Swan. Carbons of each should be in your files.)

Since last May the staff of Regional Planning Council has prepared a draft proposal "Bikeways Plan". An abstract and summary of that plan are enclosed with this letter.

Research continued during the summer months verified many of the tentative findings of last spring and reported in the May 24 letter referred to above. Two of these bear particular significance with respect to the I-205 bridge. Evergreen Highway, a north bank Columbia River bikeroute, has proved to be very popular with Clark County bicyclists in spite of the lack of route markers or adequate speed control for vehicular traffic. Bicycle traffic over the I-5 bridge (Vancouver to Hayden Island) has increased noticeably with commuter use becoming apparent to even the casual observer for the first time.

The hypothesized attractiveness of scenic and recreational areas as the destination of most recreational riding was verified. It appears, in fact, that as far as local trips are concerned, people ride bicycles for much the purpose, (commuting, recreation, shopping, school) that one might drive an automobile. Furthermore, the bicyclist tends to select his route similarly to the way a motorist

selects his route, albeit a difference in scale. If this very general observation can be applied to a particular case, the I-205 bridge; it follows that the proportion of local trips (automobile) to local trips (bicycle) will tend to be constant for traffic on the I-205 bridge. The constraint of no alternative route availability will certainly reinforce this condition.

In the five and a half miles separating the I-5 and I-205 bridges there are three water access parks on the Washington side of the river totaling less than two thousand feet of frontage. On the Oregon side in the same five and a half miles, over two miles are public beaches, and much of the remaining three and a half miles is oriented toward commercial recreation. Obviously a large number of users of these Oregon beaches (as well as Blue Lake Park, and Delta Park, both nearby) will be residents of the Washington side. There are well over fifteen thousand such residents of Clark County within twenty minutes bicycle riding time of the bridge (about a three mile radius)-- a population that is increasing at about 11% per year. This implies a doubling of that population in less than ten years and a stable population (at saturation density) of about fifty thousand within twenty years. Studies in Portland, Oregon, Eugene, Oregon, and nationally have indicated the bicycle ownership rate to be from .3 to .46 bicycles per person or about two bicycles per family of four individuals. We feel confident in assuming the Portland ratio (.46) to hold true here in the urban portion of Clark County. It follows that the present potential Clark County user population of that bridge for bicycling is not less than seven thousand individuals and it will increase in at least direct proportion to the increase in population.

Planning of bikeways in the Portland-Vancouver metropolitan area has proceeded from the start with the assumption that a bikeway system must be regionally coordinated. To this end, the Columbia Region Association of Governments has provided a regional framework for the efforts of individual jurisdictions. The plans of Clark County, the City of Portland, Multnomah County and the Port of Portland all anticipate the availability of right-of-way on the I-205 bridge for bicycle and pedestrian use.

We hope the information provided here will be of some assistance in your effort to satisfy the considerable public desire for a bicycle and pedestrian right-of-way on the I-205 bridge. We very much appreciate your interest and enthusiasm in this project.

Yours truly,

Tom

T. Jenkinson
Director

TJ:JMP:imd

Encl.

cc: CRAG
Dorland Swan

LLOYD ANDERSON
CITY COMMISSIONER

DEPARTMENT OF PUBLIC WORKS
ROOM 414, CITY HALL
1220 S.W. 5TH AVENUE
PHONE 228-6141

CITY OF PORTLAND
OREGON

November 30, 1972

Mr. Scott Colter
Oregon State Highway Division
Metro Section
5821 N.E. Glisan
Portland, Oregon

Dear Mr. Colter:

The City of Portland Bicycle Path Task Force wishes to state its continued and unswerving support for pedestrian and bicycle facilities on the I205 bridge and freeway, now in the planning stage.

This Task Force was appointed last November, 1971, by Portland City Commissioner Lloyd Anderson to prepare a comprehensive bicycle plan for Portland. The City will receive approximately $50,000 per year from state highway funds for the implementation of such a plan. The Task Force has completed its report, which is now being prepared for publication and should be available in late December or early January. Our plan was presented at a public hearing on November 13, and was favorably received. The main criticism was that the plan did not provide enough bicycle routes. We enclose the agenda of the meeting and the documents that were distributed, including the Goals for Planning, and the Policies which we hope the City of Portland will adopt in order that bicycles will be a more viable means of transportation.

We are very concerned about the need for bicycle routes in the rapidly urbanizing area around the proposed I205 freeway, where the City and Multnomah County boundaries intermingle. City-county consolidation is inevitable, and will erase these boundaries. (The City-County Charter Commission is now holding public hearings.) We have exchanged information and ideas with the Multnomah County Bicycle Task Force and coordinated our plans. Of our major bicycle routes, four will be continued by the County. These are Northeast Glisan, Southeast Woodward, Harrison and Lincoln, and Holgate-Harold Steele. Two others, Northeast Alamada and Northeast Schuyler-Grant-Tillamook, will lead to the County. We enclose copies of the reports recommending these routes. In addition, we are supporting efforts to provide a system of bicycle trails along the Columbia Slough and Marine Drive.

The easternmost route in our plan is 72nd-75th Avenue (copy enclosed). We have rejected 82nd as a bicycle route because of its congestion and lack of potential as a safe bicycle route. The I205 freeway would provide the only major north-south route east of 72nd Avenue for school children, shoppers, and commuters, as well as recreational riders. The freeway and bridge are being constructed for the use of the increasing populations in eastern Clark County and Multnomah County. A safe bicycle facility will increase the active, daily use of the thousands of new bicycles purchased in the last year. Cyclists at our two public hearings hammered away at the theme that a perfectly justified fear prevented them from using their bicycles more often. When we have a quiet, inexpensive, pollution-free means of transportation that promotes health and requires little space or pavement, we should encourage, not discourage, its use. The denial of access across the I205 bridge to cyclists and pedestrians would eventually have to be corrected. This would be at a far greater cost than is envisioned now.

We hope that you will convey our expressions of support and the documents certifying the need for bicycle facilities to the Federal Highway Administration.

Very sincerely,

Betty Barker

Betty Barker
Chairman, Bicycle Path
Task Force

LLOYD E. ANDERSON
COMMISSIONER
DEPARTMENT OF PUBLIC WORKS

WM. S. LIND
CHIEF OF OPERATIONS
JAMES L. APPERSON
CITY ENGINEER

1851

CITY OF PORTLAND
OREGON
97204
1220 S.W. 5TH AVENUE • PHONE (503) 228-6141

December 12, 1972

Mr. Michael Ackley
Rose City Wheelman C. C.
2807 NE Glisan, Apt. 304
Portland, Oregon 97232

Dear Mr. Ackley:

Your letter supporting construction of bicycle facilities on the I-205 Bridge is most appreciated. I have taken the liberty of forwarding copies of this letter to CRAG and the Oregon State Highway Division for their use in gaining federal approval of the project.

You may be interested to know the City Council recently passed a resolution requesting bicycle path facilities be constructed with the I-205 freeway project. This would connect with the bridge and provide further justification for the bridge facility.

Thank you for writing.

Yours very truly,

Lloyd Anderson
Commissioner of Public Works

LEA:bg

cc CRAG
Oregon State Highway Division

METROPOLITAN ENGINEER
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DEC 15 1972
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7485

Dick

**Rose City Wheelmen**

**Oregon's Oldest Bicycle Club**

November 28, 1972

City of Portland Bicycle Task Force
City Hall
Portland, Oregon

Att: Commissioner Lyoyd Anderson;

We members of the Rose City Wheelmen Bicycle club are in favor of construction of a bicycle path across the furture interstate 205 bridge, from Oregon to the State of Washington.

We feel the importance of a bicycle path on this bridge because it will be a main artery connecting Oregon to Washington.

The rising interest in Cycling for transportation.

The need of safe bicycle travel for commuting cyclists.

The need for encreased use of "non-polluting vehicles"

Yours Truly:
Michael Ackley President

Rose City Wheelmen C. C.
Michael C. Ackley
2807 N. E. Glisan, Apt. 304
Portland, Oregon 97232

Richard J. Yarantome
Willie Ackley
Eric Thompson
Jan Heath
Larry Heath
Robert Thompson
R. S. Thompson
Del Scharffenberg
Neal Jaenke
Steve Copeland
Michael C. Ackley

NOV 30 1972

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CCN 16
I 205
Col. R. Br.
Bikeway

FORM E-30

**OREGON STATE HIGHWAY DIVISION**
INTER-DEPARTMENT CORRESPONDENCE
Salem, Oregon

DATE March 20, 1973

TO Mr. Victor D. Wolfe
Location Engineer

FROM Walter J. Hart
Bridge Engineer

ORIGINAL SIGNED
WALTER J. HART

SUBJECT Pedestrian-Bike Pathway Study
Columbia River Bridge
I-205

Attention Mr. James D. McClure

In your current study on justifying a path on the proposed I-205 Bridge, emphasis should be given to the advantages of maintenance access which that facility will provide. It will be necessary to provide access to the interior of the box girders of the proposed structure to service navigational lights, the drainage system and for general structural inspection.

A bicycle path would greatly facilitate the maintenance and inspection work required. It would remove the necessity of placing objectionable access manholes in the traveled roadway thus increasing both efficiency and safety. Light maintenance equipment would be able to use an eight-foot wide pathway removing the necessity to park on the traveled roadway portion.

A pathway located in the median area would have several obvious advantages. It offers greater accessibility by maintenance crews to sources of trouble It would not require detracting access ladders and holes down and through the exterior girders that would be required if an edge-mounted path is used. It would provide the most accessible safety island for motorists in the event of an emergency. Emergency telephones could be provided and the caller would be safely out of the traveled roadway while calling and waiting for help to arrive.

Some means will have to be provided to permit access to the structure for maintenance purposes. The median-mounted pathway is the logical vehicle to provide that access.

WJH:dh

cc A. E. Johnson
E. S. Hunter
R. N. Bothman

RECEIVED
MAR 21 1973
OFFICE OF
ASSISTANT STATE HIGHWAY ENGINEER

NOTED
E. S. HUNTER

8965
Bikeway

WASHINGTON STATE
HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS

Highway Administration Building
Olympia, Washington 98504 (206) 753-6000

RECEIVED
STATE HWY ENGR
JAN 26 '73
REFER TO
Jim McClure
FOR

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cy Hunter
Hall Hart
1-31-73

January 23, 1973

Mr. A. E. Johnson
Assistant State Highway Engineer - Construction
State Highway Division
Highway Building
Salem, Oregon 97310

RE: SR 205 Columbia River Bridge
Bicycle Path

Dear Mr. Johnson:

We have reviewed the report on the subject item, prepared by Sverdrup and Parcel, transmitted by Mr. Hart's letter of January 5. We believe the report adequately covers and evaluates the alternatives for location of the trail. Our initial preference for location would be the Suspended Path, attached edge mounted, on the west side, depicted in Figure 7, at a cost of $2.59 million. We believe that the improvement to the environment of the trail users, in terms of reduced noise and vehicular traffic impact and improved air quality, offset the increased danger of unobserved "muggings", etc. Even though the pedestrian's view would be somewhat more restricted, traffic itself would not allow a reasonable view to the east from roadway level anyway. It would also appear this location may offer more potential for some maintenance functions.

To summarize our selection of the alternates contained in the study, we list here our order of preference.

(1) Figure 7, Precast outside on west with rail protection only. (not screened)

(2) Figure 6, Precast in the median.

(3) Figure 3, West side only.

With respect to that portion of the report outlining the alternates for access ramps to the bridge, we feel that consideration should be given to using a spiral ramp instead of the ramp as proposed to get from the bridge down to SR14 vicinity. From an aesthetic standpoint, it would seem that a spiral ramp located between the piers on the centerline of Pier 3 would be far more attractive than the ramp as shown on Plate 3.

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JAN 31 1973
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ASSISTANT STATE HIGHWAY ENGINEER

NOTED
A. E. JOHNSON

NOTED
E. S. HUNTER

If you have strong preferences which run contrary to ours, however, we are willing to be guided by your final judgment, and are more interested in adding our strong support to the need for this pedestrian bicycle capability on the structure, in some fashion.

We agree it wise that a supporting package which can be jointly transmitted to Federal Highway Administration for addition of this feature, with FAI participation, should be developed by your organization, and we stand ready to assist you in any way that you desire. Attached for your use in preparation of this material, is data from Clark County of Washington, including a letter from Mr. T. Jenkinson, Director of the Regional Planning Council, an abstract from their Bikeway Master Plan, and a map defining the comprehensive bicycle system, with priorities on that system identified. It would appear that a strong case could be developed for benefits of this addition, above the obviously recreational potential. We must, of course, design this transportation unit for the 20-year design period in which the projected growth in Washington and Oregon would make it apparent that considerable commuter value may be derived from the bicycle features on this bridge. It would also appear that benefits would be available for utilizing the pedestrian addition as a refuge and walkway for travelers with stalled vehicles and for maintenance activities on the structure itself.

Again we say, we will be glad to participate in preparing of any necessary material. If you need additional data, please advise.

Very truly yours,

G. H. ANDREWS
Director of Highways

By: W. M. FOSTER
Assistant Director
of Highway Development

GHA
WMF:nb

Attachment
cc: Andrews
Carroll

8905

Bikeway

8

1859

**OREGON STATE
HIGHWAY DIVISION**

HIGHWAY BUILDING • SALEM, OREGON • 97310

RECEIVED
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JAN 23 '73
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FOR

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|  |  |  |  |  |  |  |

January 22, 1973

Sverdrup & Parcel & Associates, Inc.
P. O. Box 369
Bellevue, WA 98004

NOTED
A. E. JOHNSON

Attention Mr. Ray Bane, P.E.
Assistant Vice President

Gentlemen:

I-205 Columbia River Bridge
Bridge 9555
Pedestrian-Bikeway Study

The Federal Highway Administration has approved the second supplemental letter agreement, dated December 27, 1972, for preparation of an additional pedestrian-bikeway feasibility study on the subject bridge. By letter dated January 16, 1973, the Federal Highway Administration approved the supplemental agreement and acknowledged that verbal authorization to proceed with the study had been given on November 24, 1972.

Please bill us as you have been doing under the title, "Additional Work," showing separate totals for work done under each of the bike path amendments.

Very truly yours,

George M. Baldwin
Administrator of Highways
By

(ORIGINAL SIGNED)
WALTER J. HART

Walter J. Hart
Bridge Engineer

RJW:dh

cc A. E. Johnson
E. S. Hunter
L. H. Young
V. E. Skoog

8905

RECEIVED

Bikeway

FOR FILE

Form FHWA-121 (12-67)
UNITED STATES GOVERNMENT

# *Memorandum*

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
Box 300
Salem OR 97308

DATE: January 16, 1973

In reply refer to: 10-35-FA

TO : Mr. George M. Baldwin, Administrator of Highways
Salem, Oregon

FROM : G. L. Green, Division Engineer
Salem, Oregon

SUBJECT: Oregon Project I-205-7(2)303
Columbia River Bridge
Supplement to Consultant Agreement

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This is to confirm Mr. H. A. Schell's November 24, 1972 verbal approval and authorization to proceed with an additional pedestrian-bikeway feasibility study for the proposed subject structure as a supplement to the existing consultant agreement with Sverdrup and Parcel. It is estimated that this will increase the cost by $5,000.

Cy- [illegible]
1-18-73

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STATE HIGHWAY ENGINEER

NOTED
A. E. JOHNSON

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OFFICE OF
A. E. JOHNSON
ASSISTANT STATE HIGHWAY ENGINEER

BUY U.S. SAVINGS BONDS REGULARLY ON THE PAYROLL SAVINGS PLAN

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FORM FOR FILING

# OREGON STATE HIGHWAY DIVISION

INTER-DEPARTMENT CORRESPONDENCE

Salem, Oregon

NOTED
A. E. JOHNSON

DATE January 5, 1973

TO Walter J. Hart
Bridge Engineer

FROM Philip M. Oakley PMO
Design Team Supervisor

SUBJECT I-205 Columbia River Bridge
Pedestrian and Bicycle Paths

Because of the location of the I-205 Columbia River Bridge and the present attitude of the public, it is almost mandatory that a pedestrian and bicycle path or paths be provided.

After a study of the consultant's reports it is my opinion that only the following three alternates should be considered. (Schemes numbered in order of appearance on attached chart from Page 16 of the January, 1973, Report.)

No. 2 - Two 5' wide, integral, edge mounted, cost $4,800,000.

No. 3 - One 8' wide, integral, edge mounted, cost $3,800,000.

No. 16 - One 8' wide, precast, on centerline, cost $2,310,000.

No. 3 - Is recommended by the consultant.

The main factors influencing our decision to discard the other alternates are listed below.

No. 1 and No. 10 - One 5' wide integral or post-tensioned. Insufficient capacity.

No. 4 and No. 13 - Two 8' wide, integral or post-tensioned. Excessive costs. (Two 8' integral paths would be best solution if cost were not a factor.)

No. 5 - One 8' wide integral on centerline. Cost exceeds No. 3, otherwise the same.

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JAN 1 1 1973
OFFICE OF
A. E. JOHNSON
ASSISTANT STATE HIGHWAY ENGINEER

No. 6, No. 7, No. 8,
and No. 9 - All strut supported. Detrimental aesthetic impact. Considerable expense is being incurred to provide an attractive structure and nothing should be done to downgrade the completed structure as these alternates apparently will do. They are also deficient in other areas.

No. 11 and No. 12 - Two 5' or two 8' precast, post-tensioned. Cost more than their integral counterparts.

No. 13 and No. 15 - One or two suspended, exterior. Detrimental aesthetic impact and user safety.

No. 17 - One suspended on centerline, poor user safety and lack of view.

The consultant's comparative chart on Page 16 of his January, 1973, submittal is quite comprehensive. Every person would have his own opinion as to the comparative weight given to each item. When I gave a weight of 3 to construction costs, user safety, and aesthetic impact, a weight of 2 to multiple use and view, a weight of 1 to inspection access and access from ground, and a weight of 0 to structural efficiency since it was felt this was already covered by construction costs, the three recommended alternates received the following scores: No. 2 - 35, No. 3 - 35, and No. 16 - 23. While with these weights No. 16 appears to be a runaway choice it does have several major drawbacks. Since looking at the scenery would be one of the main reasons for walking or cycling in this area, the restricted view from this centerline location could make it unacceptable to many people unless easy access to several other view points was made available. I increased the consultant's score for this item from 2 to 3. Others would probably increase it even more. In rebuttal some people would refuse to use edge-mounted walkways on a structure of this height.

Since aesthetic appeal is of such importance for this structure, it is my recommendation that any path be extended the full length of the structure to eliminate the need for unsightly ramps. This would, of course, increase costs and would be difficult to accomplish for No. 16, the centrally located path, particularly at the Oregon end. It is believed that any of the three recommended schemes would be acceptable to a majority of the people.

PMO/ag

Attachs.

cc A. E. Johnson (w/attach.)

From Jan. 1973 report
Sverdrup & Parcel.

| | INTEGRAL PATHS | | | | | PRECAST PATHS | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Edge-Mounted | | | | ℄ | Strut-Supported | | | | Edge-Mounted Post-Tensioned | | | | Suspended | | ℄ | | Weighted Factor (PMO) |
| | One 5' | Two 5' | One 8' | Two 8' | One 8' | One 5' | Two 5' | One 8' | Two 8' | One 5' | Two 5' | One 8' | Two 8' | One | Two | Roadway Level | Suspended | |
| Identifying No. | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ | ⑧ | ⑨ | ⑩ | ⑪ | ⑫ | ⑬ | ⑭ | ⑮ | ⑯ | ⑰ | |
| istruction Cost | 1 | 3 | 2 | 4 | 2 | 2 | 4 | 3 | 4 | 1 | 3 | 2 | 4 | 1 | 3 | 1 | 1 | 3 |
| Struc. Efficiency | 2 | 1 | 2 | 1 | 2 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 3 | 3 | 3 | 3 | 0 |
| User's Safety | 3 | 2 | 2 | 1 | 1 | 3 | 2 | 2 | 1 | 3 | 2 | 2 | 1 | 4 | 4 | 1 | 4 | 3 |
| Access From Ground | 3 | 4 | 3 | 4 | 3 | 3 | 4 | 3 | 4 | 3 | 4 | 3 | 4 | 1 | 2 | 3 | 1 | 1 |
| Inspection Access | 4 | 4 | 3 | 3 | 3 | 4 | 4 | 3 | 3 | 4 | 4 | 3 | 3 | 2 | 2 | 3 | 1 | 1 |
| Multiple Use | 3 | 3 | 2 | 2 | 1 | 3 | 3 | 2 | 2 | 3 | 3 | 2 | 2 | 4 | 4 | 1 | 4 | 2 |
| View From Path | 2 | 1 | 2 | 1 | 2 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 3 | 3 | 2 | 4 | 2 |
| Aesthetic Impact | 2 | 2 | 2 | 2 | 1 | 4 | 4 | 4 | 4 | 2 | 2 | 2 | 2 | 3 | 3 | 1 | 1 | 3 |
| TOTALS | 35 | $\boxed{35}$ | $\boxed{35}$ | 36 | 26 | 44 | 46 | 41 | 40 | 35 | 37 | 36 | 34 | 41 | 48 | $\boxed{23}$ | 36 | |

② ③ RECOMMENDED ⑯

1 - Most desirability
2 - Fair desirability
3 - Poor desirability
4 - Least desirability

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**OREGON STATE HIGHWAY DIVISION**

HIGHWAY BUILDING • SALEM, OREGON • 97310

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January 5, 1973

Mr. Wm. Foster
Washington State Highway Department
Highway Administration Building
Olympia, WA 98501

Dear Mr. Foster:

Pedestrian-Bicycle Path
Columbia River Bridge, I-205
Bridge No. 9555

Enclosed are three copies of the supplemental report, "A Pedestrian-Bicycle Path Addition to the Proposed Interstate Route I-205 Columbia River Bridge", and a copy of the consultant's letter of transmittal. The various alternate proposals for providing a pathway on the I-205 structure, as discussed in our previous meeting, have been covered in this latest report.

This report is being sent to you for your review and comments and for use in preparing a bicycle justification study for the Washington approach.

Copies of this report will not be given to the Federal Highway Administration until our two states have completed their bikeway studies in the area of the approaches to the structure.

Very truly yours,

George M. Baldwin
Administrator of Highways
By

Walter J. Hart
Bridge Engineer

NOTED
F. B. KLABOE

WJH:dh
Enclosures

cc Mr. R. L. Carroll /w/ 2 encl.
Mr. F. B. Klaboe /w/ 1 encl.
Mr. A. E. Johnson
Mr. E. S. Hunter /w/ 1 encl.
Mr. H. S. Coulter

SVERDRUP & PARCEL AND ASSOCIATES, Inc.

January 2, 1973

Oregon State Highway Division
Highway Building
Salem, Oregon 97310

Attention: Mr. Walter J. Hart
Bridge Engineer

Gentlemen:

Subject: I-205 Columbia River Bridge
Bridge 9555

As requested in your letter dated November 28, 1972, we submit under separate cover fifteen copies of our report entitled "A Pedestrian-Bicycle Path Addition to the Proposed Interstate Route I-205 Columbia River Bridge". This report is an enlargement of our earlier studies and report dated March 20, 1972.

Alternative locations for a pedestrian-bicycle path are compared with respect to several variables including safety, construction cost, and aesthetics.

As in our earlier studies, we recommend an integral, edge-mounted, roadway level path on the west side of the bridge.

Very truly yours,

SVERDRUP & PARCEL AND ASSOCIATES, Inc.

R. D. Bane

R. D. Bane, P. E.
Regional Manager

Enclosures

cc: H. Scott Coulter (w/enclosure)

RECEIVED
JAN 3 - 1973
BRIDGE DIVISION

# A
# PEDESTRIAN-BICYCLE PATH ADDITION
# TO THE
# PROPOSED INTERSTATE ROUTE I-205
# COLUMBIA RIVER BRIDGE

Prepared for

OREGON STATE HIGHWAY COMMISSION

JANUARY 2, 1973

SVERDRUP & PARCEL AND ASSOCIATES, Inc.
Consulting Engineers

Bellevue, Washington - St. Louis, Missouri

RECEIVED
JAN 3 - 1973
BRIDGE DIVISION

## FOREWORD

This report presents the results of studies for the addition of a pedestrian-bicycle path or paths on the proposed I-205 bridge across the Columbia River. It is submitted in response to a request by the Oregon State Highway Division by letter of November 28, 1972.

The purpose of these studies is to correlate previous investigations with additional concepts and to compare all schemes for construction costs, advantages and disadvantages and economic returns for multiple use in regard to access for emergencies and structure inspection.

## SUMMARY

This report covers the study for the addition of a pedestrian-bicycle path to the proposed I-205 Columbia River Bridge.

Alternative locations of the path on the bridge are presented and compared with respect to safety, access, and appearance. The view of the surrounding area from these locations, the effect of the installation on established structural and geometric plans, benefits from multiple use and estimated cost of the addition are also discussed.

If a pedestrian-bicycle path is required on this structure, construction of the path on the west side of the bridge, connected to ground facilities near the abutments of the structure is recommended.

The estimated cost of this pedestrian-bicycle path addition to the bridge is approximately $3,800,000.

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## PLATES

(Bound at end of report)

1 Precast Path - Strut-Supported and Post-Tensioned

2 Precast Path on Centerline

3 Access Ramp at SR-14

4 Access at Marine Drive

5 Inspection Access

6 Inspection Access

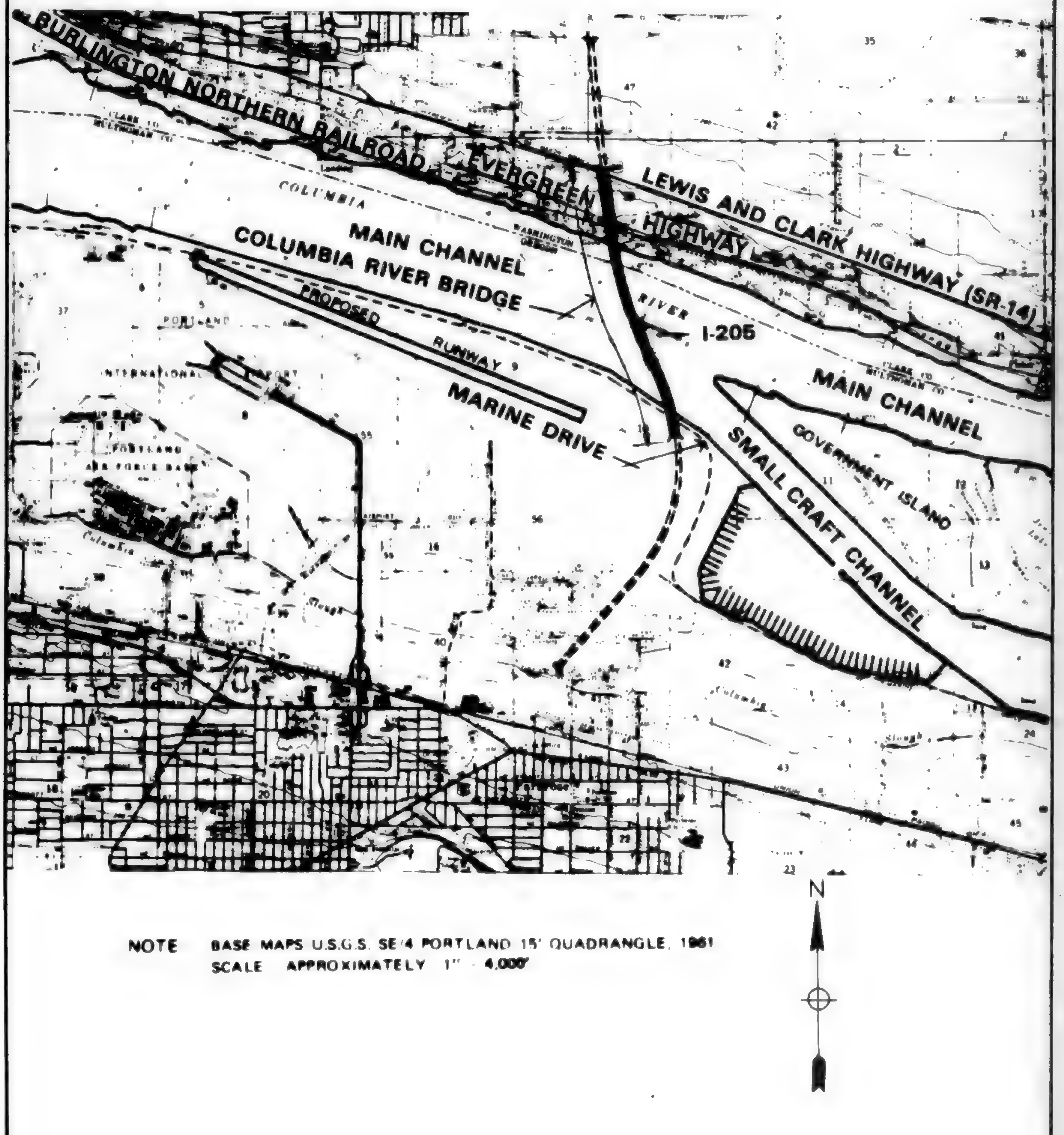
## INTRODUCTION

Route I-205 is a circumferential Interstate Highway which passes to the east of Portland, Oregon and Vancouver, Washington. A bridge, presently being designed, will carry this highway across the Columbia River as shown on Figure 1.

A system of bicycle trails has been proposed in the Portland-Vancouver area, and a path on the I-205 Columbia River Bridge has been suggested as part of that system. Comprehensive plans, presently being developed, will include facilities on Marine Drive in Oregon and near Evergreen Highway in Washington.

This report presents several possible locations for a pedestrian-bicycle path on the bridge, structural concepts for making the addition, and the necessary ramps to connect with local facilities.

Design criteria, safety of the traveling public, aesthetic impact of the addition to the structure, construction costs, and economic returns for multiple use are discussed and conclusions are drawn for a recommendation of the optimum installation.


BURLINGTON NORTHERN RAILROAD
EVERGREEN HIGHWAY
LEWIS AND CLARK HIGHWAY (SR-14)
COLUMBIA
MAIN CHANNEL
COLUMBIA RIVER BRIDGE
RIVER
I-205
PROPOSED RUNWAY 9
PORTLAND
INTERNATIONAL AIRPORT
PORTLAND AIR FORCE BASE
MARINE DRIVE
MAIN CHANNEL
GOVERNMENT ISLAND
SMALL CRAFT CHANNEL
WASHINGTON
OREGON
CLARK CO.
MULTNOMAH CO.
N

NOTE BASE MAPS U.S.G.S. SE/4 PORTLAND 15' QUADRANGLE, 1961
SCALE APPROXIMATELY 1" = 4,000'

FIGURE 1

## DESIGN CRITERIA

The following criteria have been derived in part from "Footpaths and Bike Routes - Standards and Guidelines", Oregon State Highway Division, January, 1972.

1. Width - A single two-way path shall be eight feet wide. Two one-way paths shall each be a minimum of four feet wide and preferably six feet wide.

2. Height - Minimum vertical clearance shall be ten feet.

3. Alignment - Maximum grade shall be ten percent. Minimum radius of curvature shall be twenty feet.

4. Design Load - Live load shall be in accordance with AASHO Sidewalk Loading. Railing load shall be in accordance with AASHO design load for Pedestrian Railing.

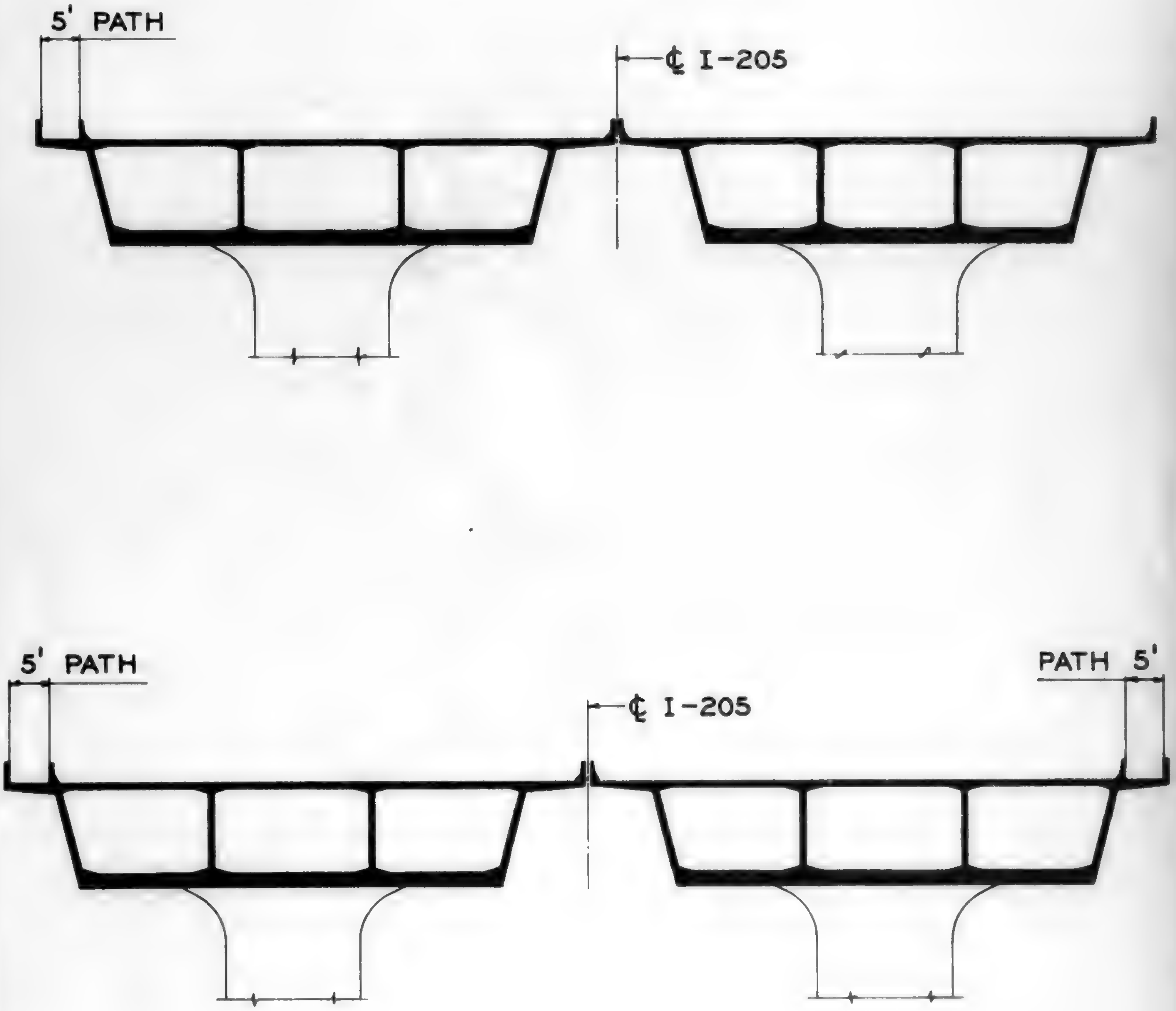
## PEDESTRIAN-BICYCLE PATH ON STRUCTURE

In the study, for the addition of a pedestrian-bicycle facility to the proposed Columbia River Bridge, consideration must be given to the location of the path, width and number of paths, and structural concepts involved in attaching the path to the structure. The location is important from the standpoint of saftey, unobstructed view, access from ground facilities, access to the structure, and the aesthetic impact the addition might have on the structure. Width is a factor in the selection of one or two paths and whether or not a one-way directional path or a two-way route is desirable. Structural concepts employing the use of prefabricated externally attached units or integral installations will directly influence the ultimate construction cost of the installation. These and other considerations are discussed and compared in the following paragraphs and sections of this report.

### A. LOCATION

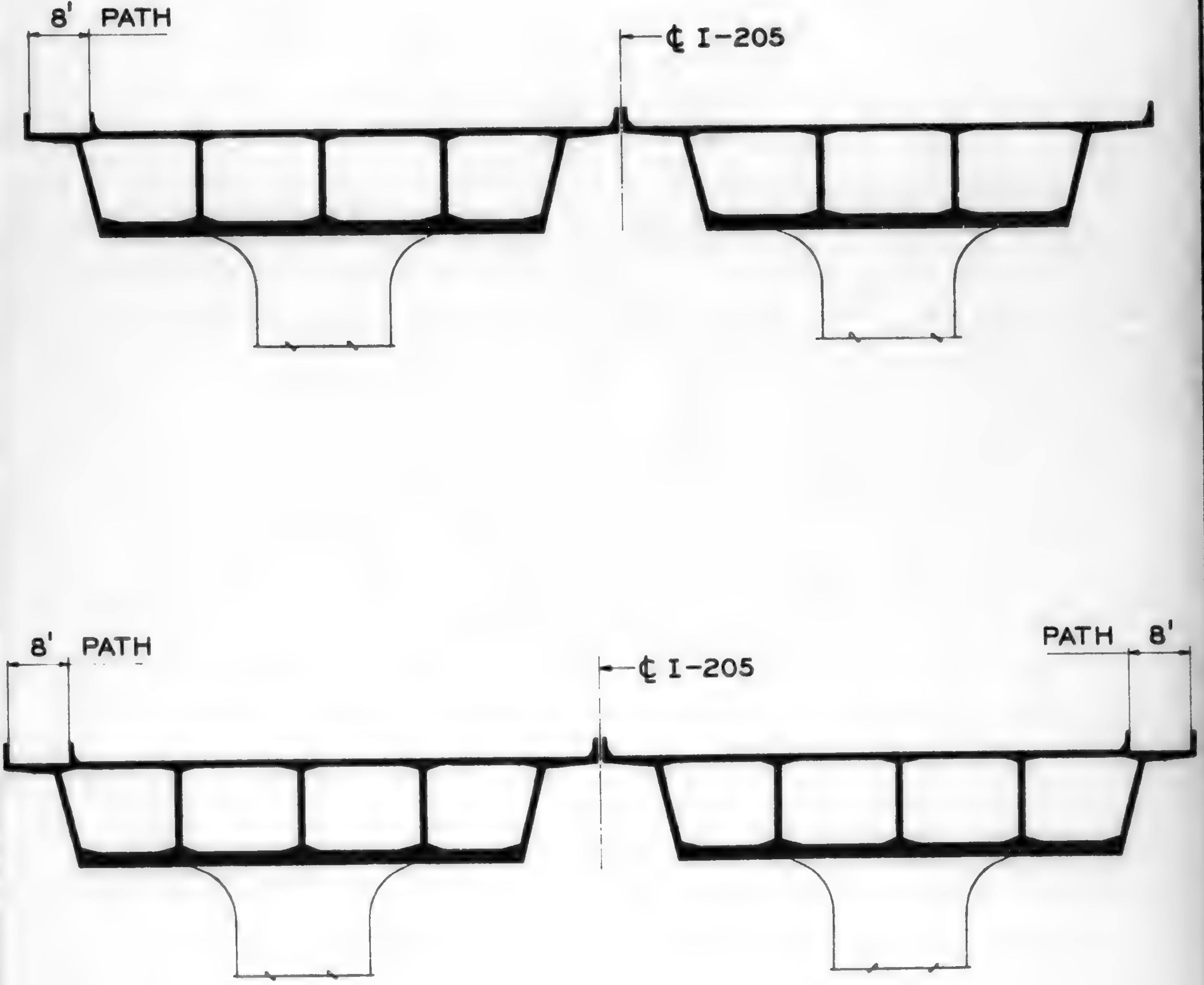
The pedestrian-bicycle path can be positioned at roadway level or it can be suspended below the deck slab. In either of these instances, the path could be oriented on one or both edges of the structure or could be set on or near the centerline of bridge (see Figures 2 through 7).

If a path or paths are located at roadway level, all areas for the different modes of travel are in view and accessible one to the other. This is beneficial both for the minor disturbance or the more serious accident when outside help is needed. In


5' PATH
℄ I-205
5' PATH
℄ I-205
PATH 5'

INTEGRAL 5' PATH – ONE OR BOTH SIDES

FIGURE 2


8' PATH
℄ I-205
8' PATH
℄ I-205
PATH 8'

INTEGRAL 8' PATH – ONE OR BOTH SIDES

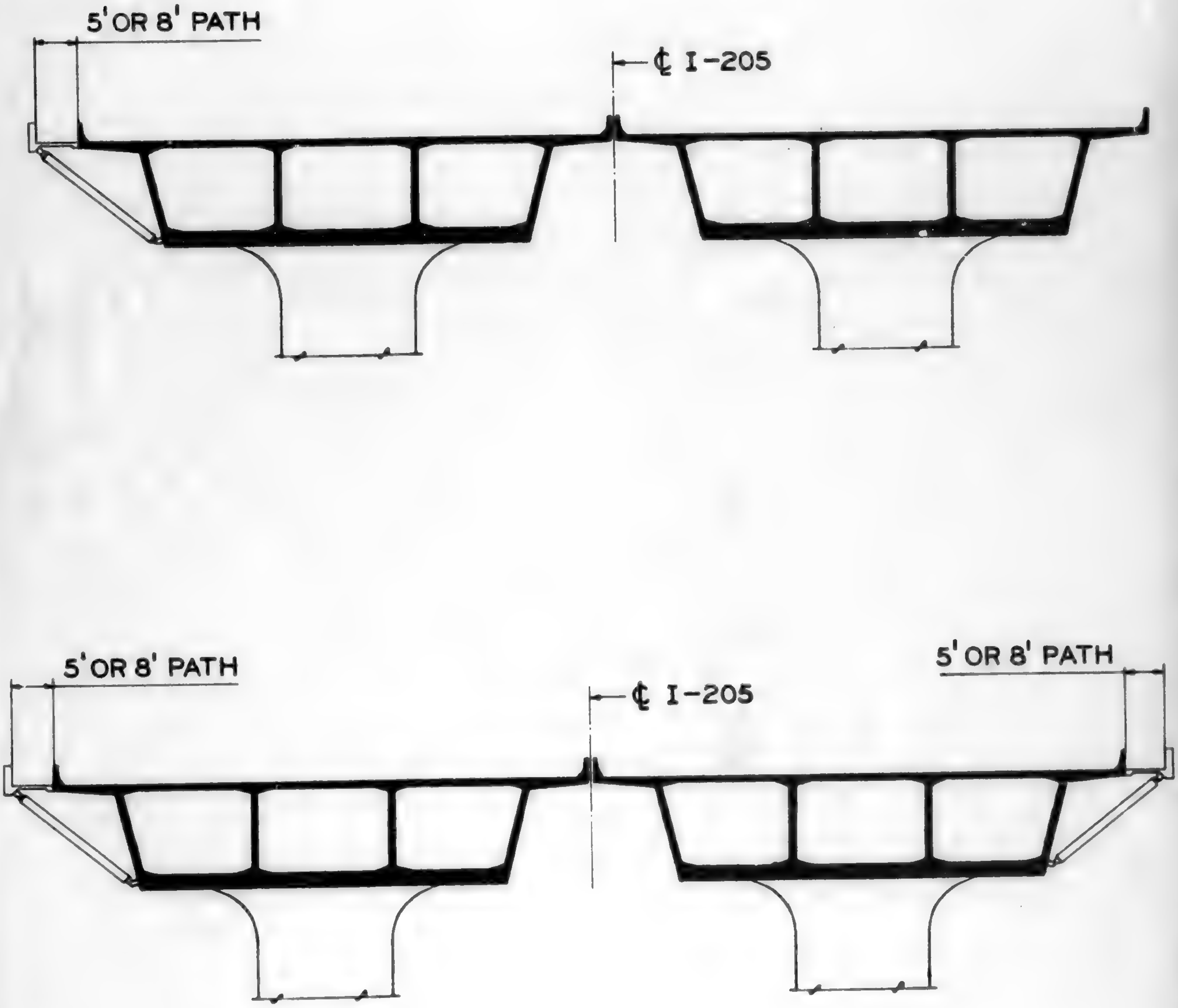
FIGURE 3

addition, roadway lighting would be available for illumination of the path as well as the travelled way.

If the path is suspended below the deck slab, the slower pedestrian-bicycle traffic is entirely separated from the vehicular traffic, thereby preventing any interference between the two. The path would also be partially protected from the elements by the roadway slab. However, a separate lighting system would have to supply the illumination for this path. In addition, minor disturbances would go unnoticed and accident scenes would be difficult to reach because access to the path is provided only near the bridge ends, which are over a mile apart.

From the standpoint of safety, it appears that the roadway level path or paths would have preference over those suspended below the deck slab.

Since a trip across the Columbia River Bridge can be an exciting experience to a pedestrian or bicyclist, it is desirable to locate the path in that area and at that height which would afford the maximum view of the surrounding area. For those path locations suspended below the deck slab, the view is entirely cut off for the centerline-mounted path and is limited to 180° of horizon for a path on either edge. Roadway-level paths would provide a considerably better vantage point with a path on the west edge giving the most view and a centerline-mounted path the least view of the landscape. The varying degrees of view of each of the roadway-level paths is due in part to the superelevation of the structure and the location of the path with respect to vehicular traffic.


5' OR 8' PATH
℄ I-205
5' OR 8' PATH
℄ I-205
5' OR 8' PATH

PRECAST - STRUT-SUPPORTED - 5' OR 8' PATH
ONE OR BOTH SIDES

FIGURE 4

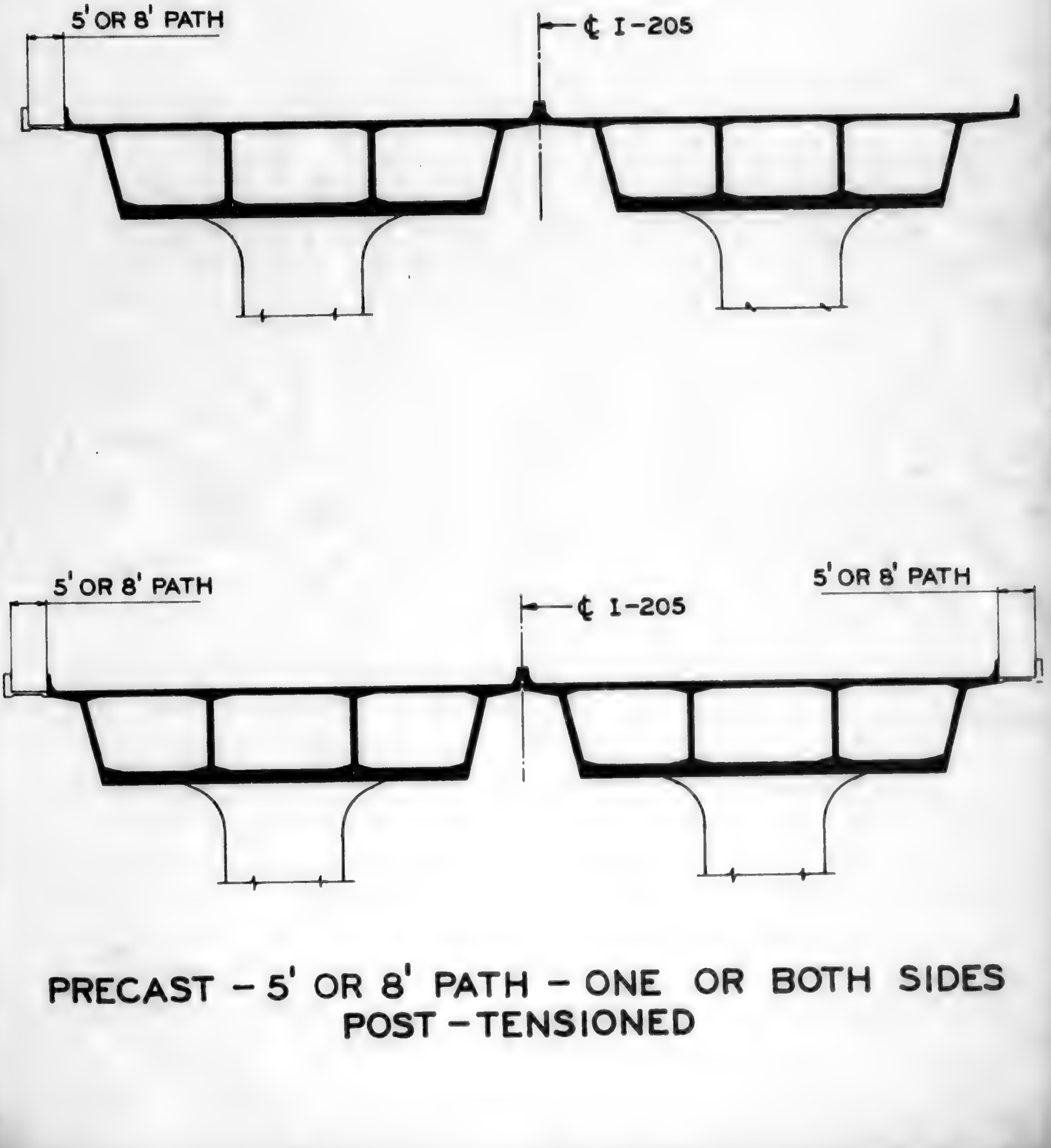
For the access from ground facilities, the least height which a pedestrian or bicyclist has to traverse to reach the path would be the more comfortable. With no reservations, the paths suspended below the deck slab would afford this feature. A ramp at a ten percent gradient would be about one hundred feet longer in order to reach a roadway-level path as opposed to that for a suspended path.

For access to the structure itself, for purposes of maintenance and inspection, a direct entrance is preferable. Other than providing manholes in the deck slab, which has its objections, a door through the exterior web of the box girder would be the alternate choice. The most direct route to this entrance would be the suspended path below the deck slab.

From an aesthetic point of view, an installation of a path which does not conflict with presently established geometrical lines of the bridge would be desirable. Any integral path at roadway level, any precast unit which extends existing lines or any path on the centerline of bridge, at roadway level or suspended below the deck slab, will comply with this requirement. Exterior-suspended paths or strut-supported precast paths would conflict with and have a detrimental effect on the appearance of the structure.

## B. SINGLE OR DUAL FACILITY

A single eight-foot-wide path, added to one of the dual structures, would provide a two-way route to serve the pedestrian-bicycle mode of travel. However, this addition to just one bridge


5' OR 8' PATH
℄ I-205
5' OR 8' PATH
℄ I-205
5' OR 8' PATH

PRECAST - 5' OR 8' PATH - ONE OR BOTH SIDES
POST - TENSIONED

FIGURE 5

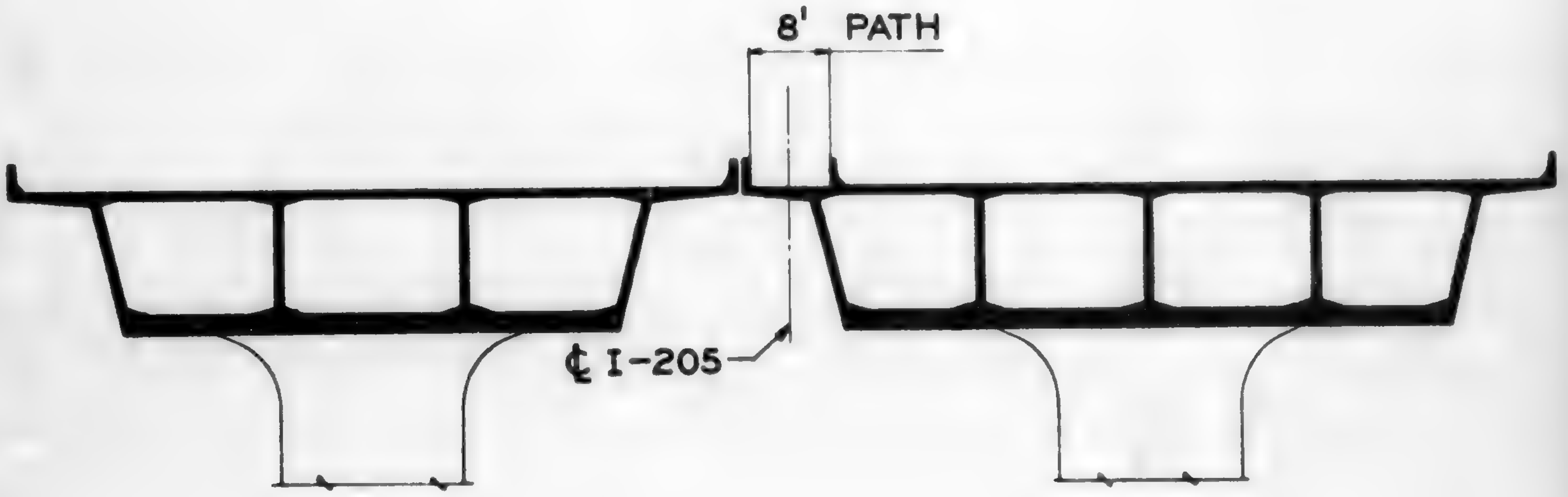
would have a construction cost escalation feature due to dissimilar units in the dual facility. If two five-foot-wide one-way facilities could be added, one to each of the dual structures, the facilities for the pedestrian bicyclists are improved and the dual structures would be identical, thereby improving unit cost.

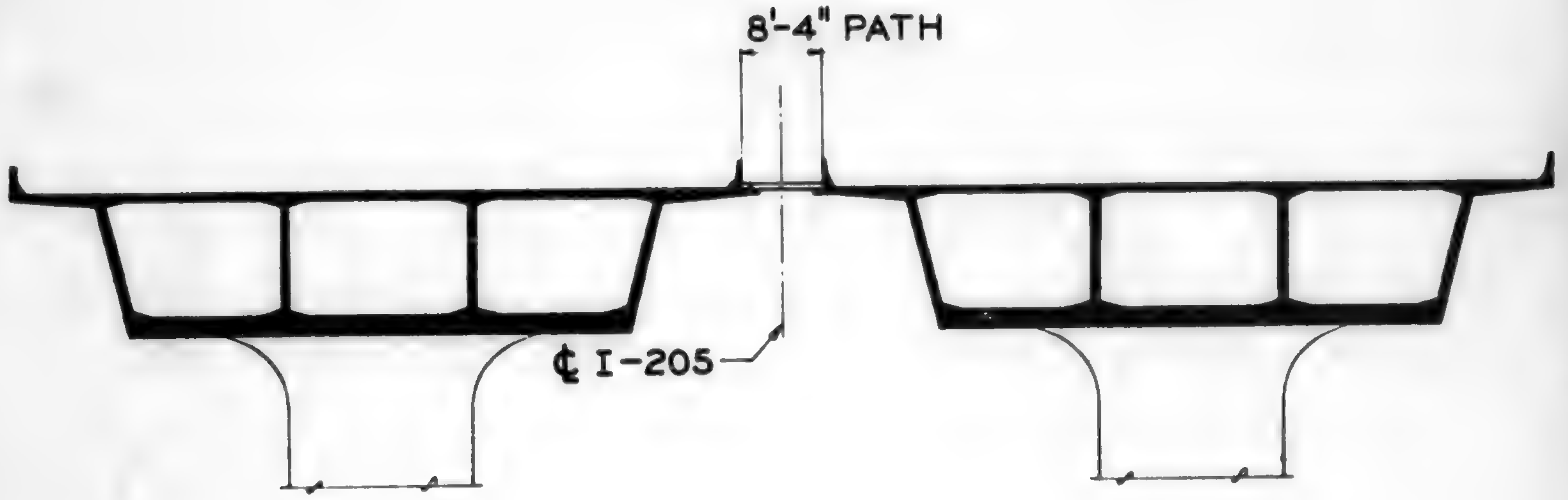
However, there appears to be some question as to whether one-way traffic can be maintained on this type of facility. The path or paths are in excess of six thousand feet in length with much of this distance located on a gradient of 2.87 percent rising from the south to the north. A path of this length and at this grade would be difficult for some to traverse, and a partial trip out onto the bridge and return might be required. In this event, two-way facilities would be required for the safety of the user.

In general, a single two-way facility, eight-feet wide, would appear adequate. An alternate installation of two one-way five-foot wide paths questionable, and an addition of dual two-way eight-foot wide paths, one to each structure, would be the ultimate installation.

## C. STRUCTURAL CONCEPTS

A pedestrian-bicycle path can be structurally added to the I-205 Columbia River Bridge in several ways. If the path is located at roadway level, the box girder can be widened to accommodate the facility as an integral part of the structure. If the path is suspended below the deck or is located at roadway level, it can be made up of precast units which are ultimately attached




8'-4" PATH
℄ I-205

PATH ON CENTERLINE, INTEGRAL OR PRECAST

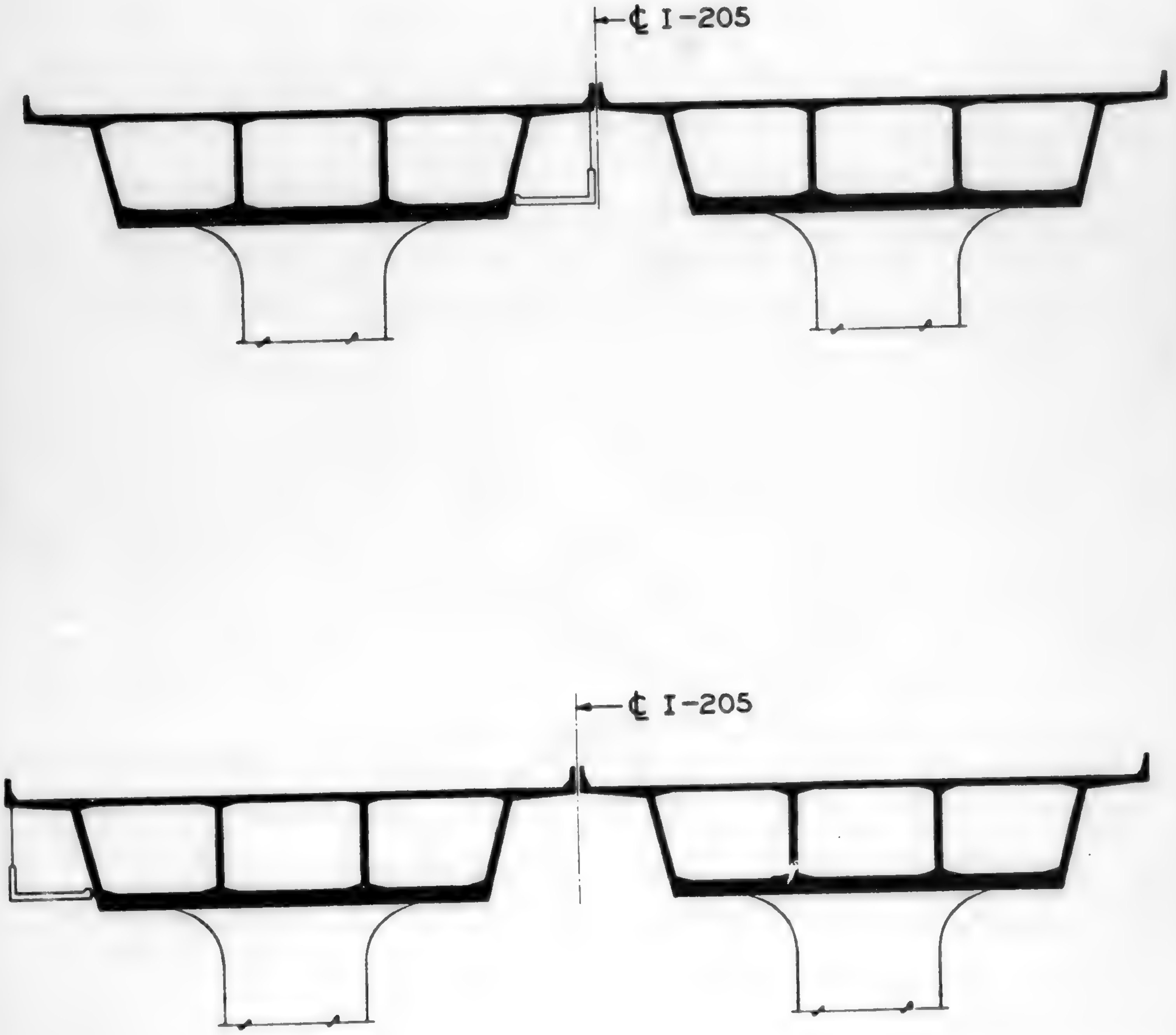
FIGURE 6

to the superstructure. The use of one or the other of these concepts has certain structural advantages, will require that revisions be made to established geometrics, and will generally dictate the overall construction cost of the addition.

As an integral part of one or both of the dual concrete box girders, the path or paths would structurally participate with the girders to carry the additional superimposed dead and live loads. The dual structures can be maintained as separate units completely independent one to the other, with little or no concern for structural damage under unusual loading conditions such as a severe earthquake.

On the other hand, an integral path positioned on only one of the dual structures would create differences in the size and shape of the components in the dual concrete box girder bridges. It will be noted in comparing Figures 2, 3, and 6 that a five-foot-wide path creates a slight change to components of the box girder and an eight-foot-wide path could require the addition of another vertical web. This would add significantly to the construction cost of the bridge as uniformity is paramount for economy in the type of construction involved. In addition, the widened structure or structures would necessitate changes in the already established geometrics of the bridge.

Any scheme which includes the addition of precast units to the structure for the pedestrian-bicycle path would add additional weight to the existing structure without providing any load-carrying capacity. Minor to moderate structural changes would have to be



PRECAST PATH SUSPENDED BELOW ROADWAY

FIGURE 7

made for any of the precast schemes.

In the development of preliminary designs and cost estimates for precast paths, details as shown on Plates 1 and 2 were used. In addition, all precast units were considered to be made of light-weight aggregate concrete and mild steel reinforcement. Some post tensioning is required for the addition of the precast path to the edge of the roadway slab.

BRIDGE RIAL AND FENCE

Several factors affect the selection of a type of rail of fence to be used for the pedestrian-bicycle path. Safety, access from one part of the structure to another in emergencies, appearance, and sight obstruction are all of importance.

For the safety of the cyclist, the selection of a smooth-faced parapet or barrier of a height approximating the level of the bicycle seat is desirable. A fence or rail should be added to the top of this parapet to a height of about 4'-6" to prevent an accidental fall.

This fence or rail can be of several varieties of tubular construction, woven wire or fabricated steel. A strong, open-type rail is suggested.

A rail composed of 1-inch square bars, as shown on Plate 3, will provide safety, purposeful access, minimal obstruction to the view, and minimal effect on appearance of the bridge.

## ACCESS RAMPS

Evergreen Highway in Washington and Marine Drive in Oregon are considered to be logical routes for a portion of a proposed comprehensive pedestrian-bicycle path system. As the Columbia River Bridge crosses over these two routes, ramps will have to be provided to permit access from the ground-level route to the bridge-mounted path.

The bridge crosses Evergreen Highway approximately 140 feet above the ground. A direct connection ramp, ground-to-bridge at this location, is not practical under this circumstance, either for the comfort of the user or from the appearance of a structural arrangement. However, the ground and bridge profiles are oriented such that approximately 1200 feet to the north of Evergreen Highway, the bridge crosses over the Lewis and Clark Highway about 35 feet above ground. It is apparent, therefore, that a ground-to-bridge ramp can be placed in the area between the two highways which can be further connected by an at-grade facility leading to either or both highways. Such an arrangement is shown on Plate 3.

At Marine Drive, several possibilities exist for positioning a pedestrian-bicycle path access ramp, depending on the position of that facility on the bridge superstructure. If the pedestrian-bicycle path is placed on either of the exterior edges of the bridge, it could be extended across the bridge abutment and then be connected with Marine Drive by an at-grade ramp. If a centerline-mounted pedestrian-bicycle path is adopted, a structural ramp suspended from the bridge superstructure should terminate at the northerly edge of Marine Drive. These concepts are shown on Plate 4.

Other possibilities exist which have not been taken into account in this study. At SR-14, it is possible, with minor revision to the interchange geometrics, to extend a side-mounted path beyond the abutment and return it to the south side of the highway along the alignment of one or both ramps. If a centerline-mounted path is used, it could be extended beyond either or both of the north and south abutments in the median area and returned to local facilities at the next overcrossing. Either or both of these schemes should receive some consideration.

## MULTIPLE USE OF PATH

In addition to providing a link in a comprehensive pedestrian-bicycle path system, other benefits can be derived by utilizing it for inspection and maintenance access and in the instance of roadway-level paths, emergency telephone and fire control stations could be operated and serviced from the path.

In order to measure the benefits received from the path for these additional installations, a comparison must be made with these facilities mounted on a structure with and without a path.

Inspection and maintenance personnel, on a structure without a path, would have to be routed through manholes located in the travelled way, manholes located in the shoulder area leading to ladders and platforms, or by means of side-mounted ladders and cages leading to platforms. Some of these schemes are shown in part on Plates 5 and 6. For estimating purposes, these access schemes have been developed using structural steel framing and open grating.

If a path is provided, at roadway level, the access manhole can be located in the path leading to the ladders and platforms. With a path suspended below the deck slab, the manhole in the shoulder area or side-mounted ladder again becomes necessary for access at points between the ends of the path.

It would be pertinent to emphasize, as shown on Plates 5 and 6, that the eight-foot-wide path provides sufficient width for the manhole to give direct access to the interior of the box girder while with the five-foot-wide path an exterior-mounted ladder and platform is necessary to connect the manhole with the entrance to the box girder. In addition, the open manhole in a five-foot-wide path restricts pedestrian passage to a considerable degree.

In all schemes, with and without a path, maintenance vehicles carrying men and equipment other than a small tri-car which might operate over the path, will have to be stopped or parked along the shoulder adjacent to the entrance for unloading and loading.

The construction cost of these schemes of access, in the order of most expensive to least expensive, is as follows: side-mounted ladder to a platform with no path; manhole in shoulder area with ladder and platform leading to suspended path; manhole in five-foot-wide path leading to ladder and platform; manhole in eight-foot-wide path or travelled way leading directly into the interior of the box girder. The actual cost of each of these systems of access is not enough different to be a persuasive argument for or against any one of them. The intangible benefits received by means of access off of the travelled way, installations not affecting the appearance of the structure and minimal installations requiring the least amount of maintenance weigh heavily in favor of access by means of a manhole in an eight-foot-wide path.

In addition, junction boxes, emergency telephones, and fire control stations that can be serviced and operated off of the travelled way would be beneficial to the traveling public and maintenance personnel.

## CONSTRUCTION COST

The construction cost of each of the pedestrian-bicycle path schemes utilizing structural ramps, where applicable, and excluding any benefits for multiple use are as listed below. The total cost shown reflects the necessary modifications to established concepts, variance in unit costs for similar or dissimilar superstructure cross sections, and includes a twenty percent engineering and contingency figure. All unit costs used in deriving these total costs are based on April 1971 values in order to relate these figures with those shown in the design report.

### Construction Cost in Millions of Dollars

| Figure | Scheme | One Path | Two Paths |
|---|---|---|---|
| 2 | Five-foot-wide, integral | $2.82 | $4.80 |
| 3 | Eight-foot-wide, integral | 3.80 | 6.47 |
| 4 | Five-foot-wide, precast, strut-supported | 3.40 | 5.78 |
| 4 | Eight-foot-wide, precast, strut-supported | 4.57 | 7.76 |
| 5 | Five-foot-wide, precast, post-tensioned | 2.98 | 5.09 |
| 5 | Eight-foot-wide, precast, post-tensioned | 4.02 | 6.84 |
| 6 | Eight-foot-wide, integral | 3.51 | -- |
| 6 | Eight-foot-wide, precast | 2.31 | -- |
| 7 | Suspended path, centerline-mounted | 2.59 | -- |
| 7 | Suspended path, edge-mounted | 2.59 | 4.40 |

## CONCEPTS COMPARED

In order to arrive at a recommendation for the optimum addition of a pedestrian-bicycle path to the Columbia River Bridge, a comparison of each with respect to desirability for safety, cost, access, aesthetic impact, multiple use, view, and structural efficiency is mandatory.

The table on the following page has been prepared for this comparison with each item being rated numerically from 1 to 4, the most desirable to the least desirable, respectively. This table assumes equal importance of each of the items compared and adjustments should be made if it is felt one or another of the items should be weighted more heavily.

It can generally be seen in this comparison that, the centerline-mounted paths, precast or integral, and eight-foot wide, edge-mounted, integral-paths should have some preferance over other concepts.

| | INTEGRAL PATHS | | | | | PRECAST PATHS | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Edge-Mounted | | | | ℄ | Strut-Supported | | | | Edge-Mounted Post-Tensioned | | | | Suspended | | ℄ | |
| | One 5' | Two 5' | One 8' | Two 8' | One 8' | One 5' | Two 5' | One 8' | Two 8' | One 5' | Two 5' | One 8' | Two 8' | One | Two | Roadway Level | Suspended |
| Construction Cost | 1 | 3 | 2 | 4 | 2 | 2 | 4 | 3 | 4 | 1 | 3 | 2 | 4 | 1 | 3 | 1 | 1 |
| Struc. Efficiency | 2 | 1 | 2 | 1 | 2 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 3 | 3 | 3 | 3 |
| User's Safety | 3 | 2 | 2 | 1 | 1 | 3 | 2 | 2 | 1 | 3 | 2 | 2 | 1 | 4 | 4 | 1 | 4 |
| Access From Ground | 3 | 4 | 3 | 4 | 3 | 3 | 4 | 3 | 4 | 3 | 4 | 3 | 4 | 1 | 2 | 3 | 1 |
| Inspection Access | 4 | 4 | 3 | 3 | 3 | 4 | 4 | 3 | 3 | 4 | 4 | 3 | 3 | 2 | 2 | 3 | 1 |
| Multiple Use | 3 | 3 | 2 | 2 | 1 | 3 | 3 | 2 | 2 | 3 | 3 | 2 | 2 | 4 | 4 | 1 | 4 |
| View From Path | 2 | 1 | 2 | 1 | 2 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 3 | 3 | 2 | 4 |
| Aesthetic Impact | 2 | 2 | 2 | 2 | 1 | 4 | 4 | 4 | 4 | 2 | 2 | 2 | 2 | 3 | 3 | 1 | 1 |

1 - Most desirability
2 - Fair desirability
3 - Poor desirability
4 - Least desirability

## CONCLUSIONS AND RECOMMENDATIONS

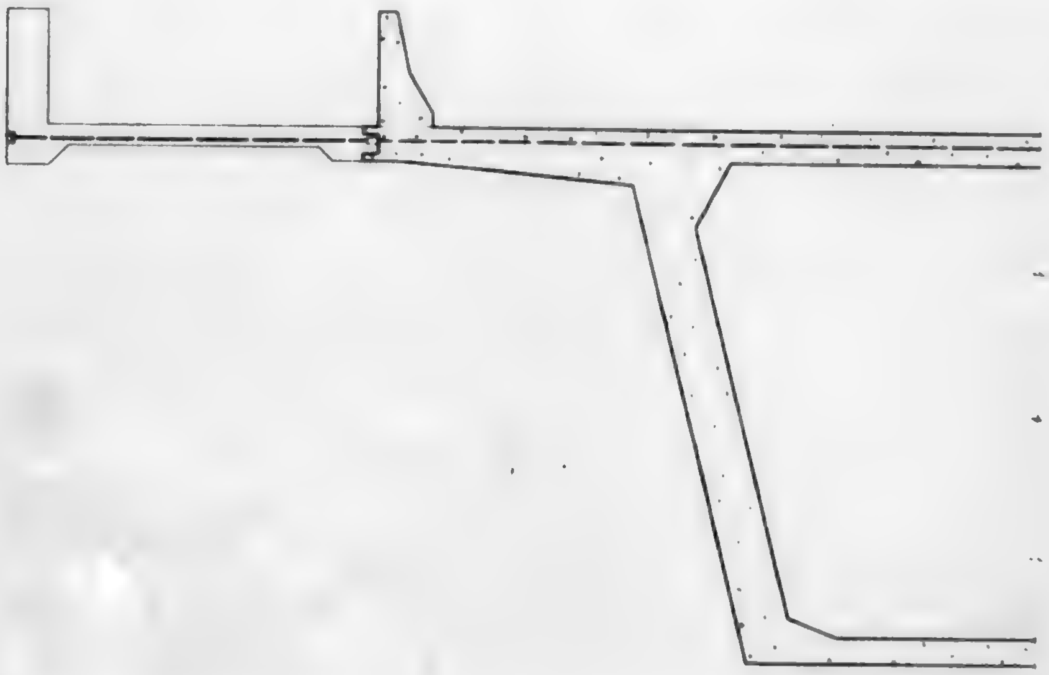
As a result of the studies outlined in the previous sections of this report, generalities can be concluded as follows:

1. Roadway-level paths are the safer for the use of pedestrians and bicyclists, particularly those of eight-foot-width.
2. Integral construction provides a means of attaching the path with more structural efficiency.
3. Hidden paths or paths that do not interfere with the lines of the structure have the lesser aesthetic impact.
4. Roadway-level paths are located for the greater view of the landscape.
5. Roadway-level paths provide more opportunity for multiple use.
6. Suspended paths would be easier to cross.
7. Suspended paths provide the most direct route for inspection access.
8. A centerline-mounted path of precast construction is the least expensive.

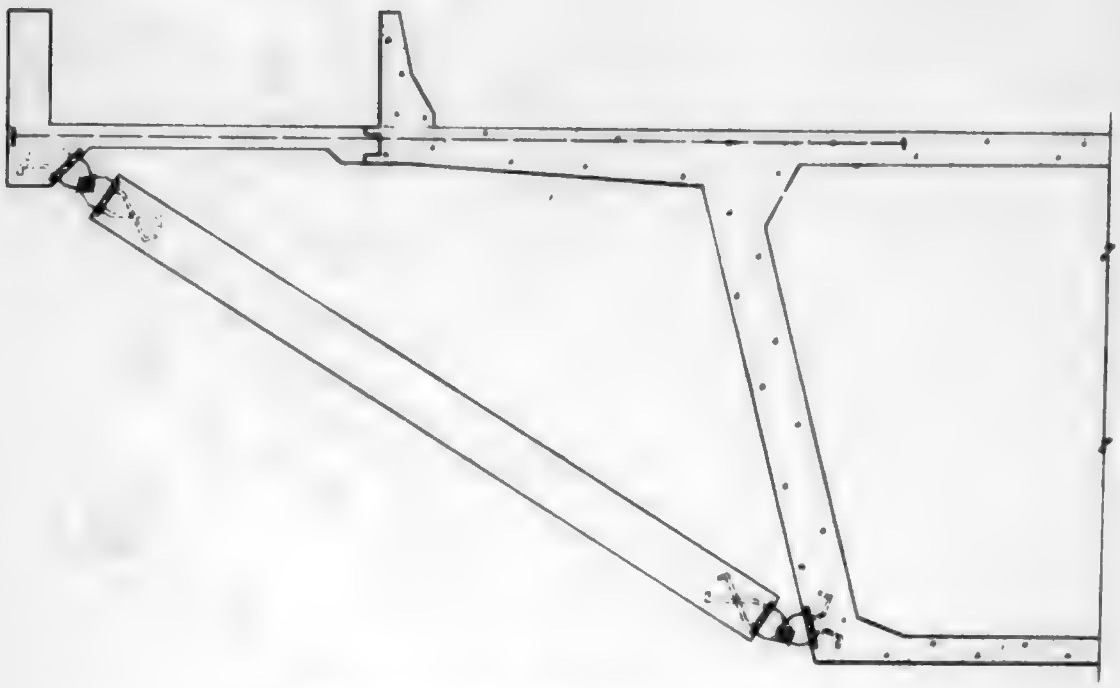
From these general conclusions and the rating system of the previous section, it would appear that a precast centerline-mounted path would be the logical choice. There are some detrimental considerations to this selection, however, which have previously been explored and should be reemphasized here.

The structural installation requires that a continuous expansion plate be installed the entire length of one side of the path which will ultimately be a maintenance problem. The setting of the path, on two independent structures in an earthquake zone, may lead to extensive repair and replacement in the event of a sizable seismic shock. In addition, considerably more view of the surrounding landscape can be obtained from a location on the west side of the structure where vehicular traffic does not surround the pedestrian and bicyclist.

It would be on the basis of these conclusions that the optimum choice for the installation of a pedestrian-bicycle path would be an integral edge-mounted path on the west side of the structure costing $3,800,000. This would be $1,490,000 more than the least expensive scheme.



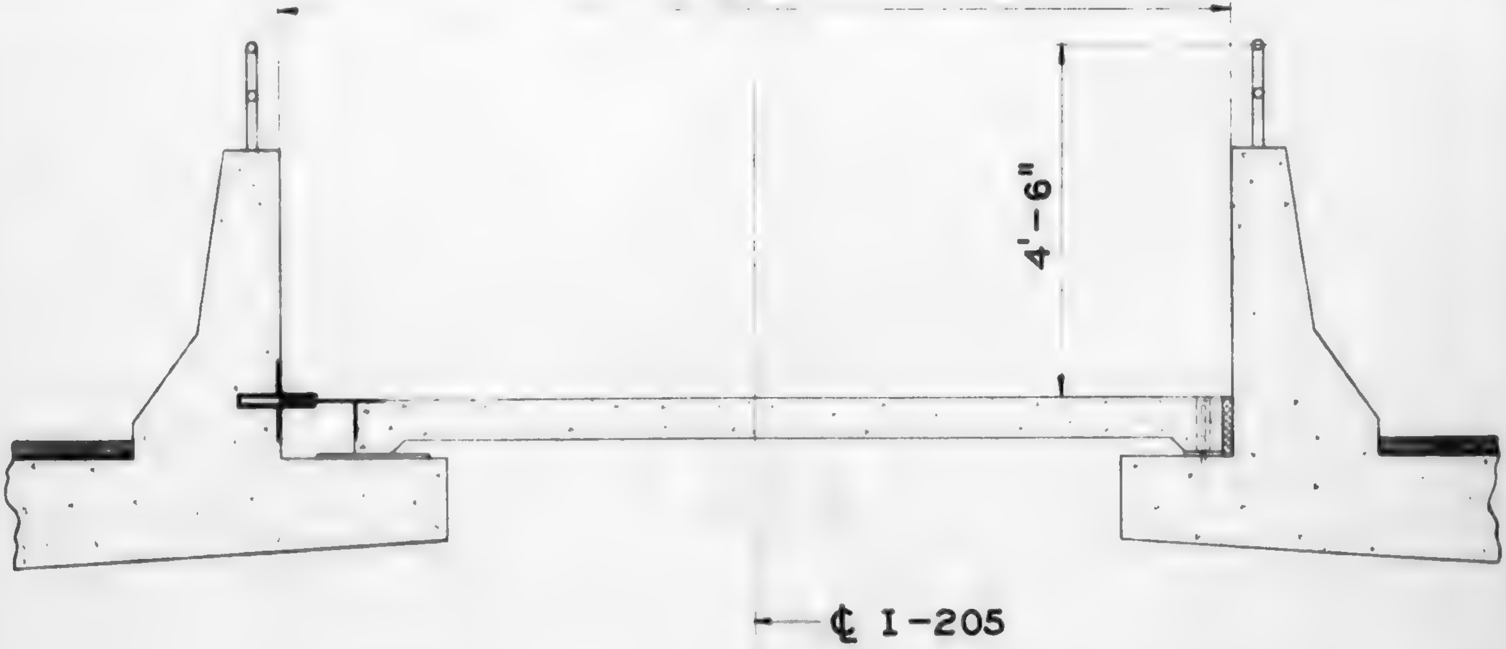
POST-TENSIONED CANTILEVER



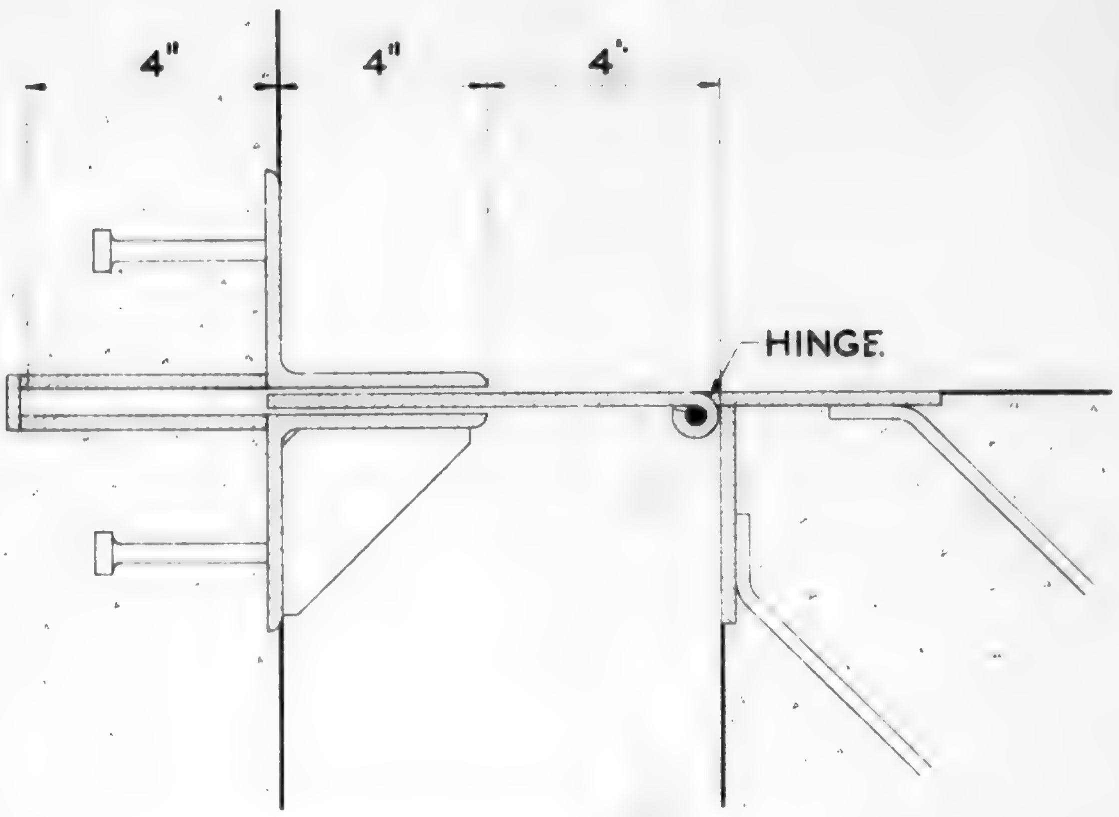
STRUT-SUPPORTED

## PRECAST PATH

PLATE 1

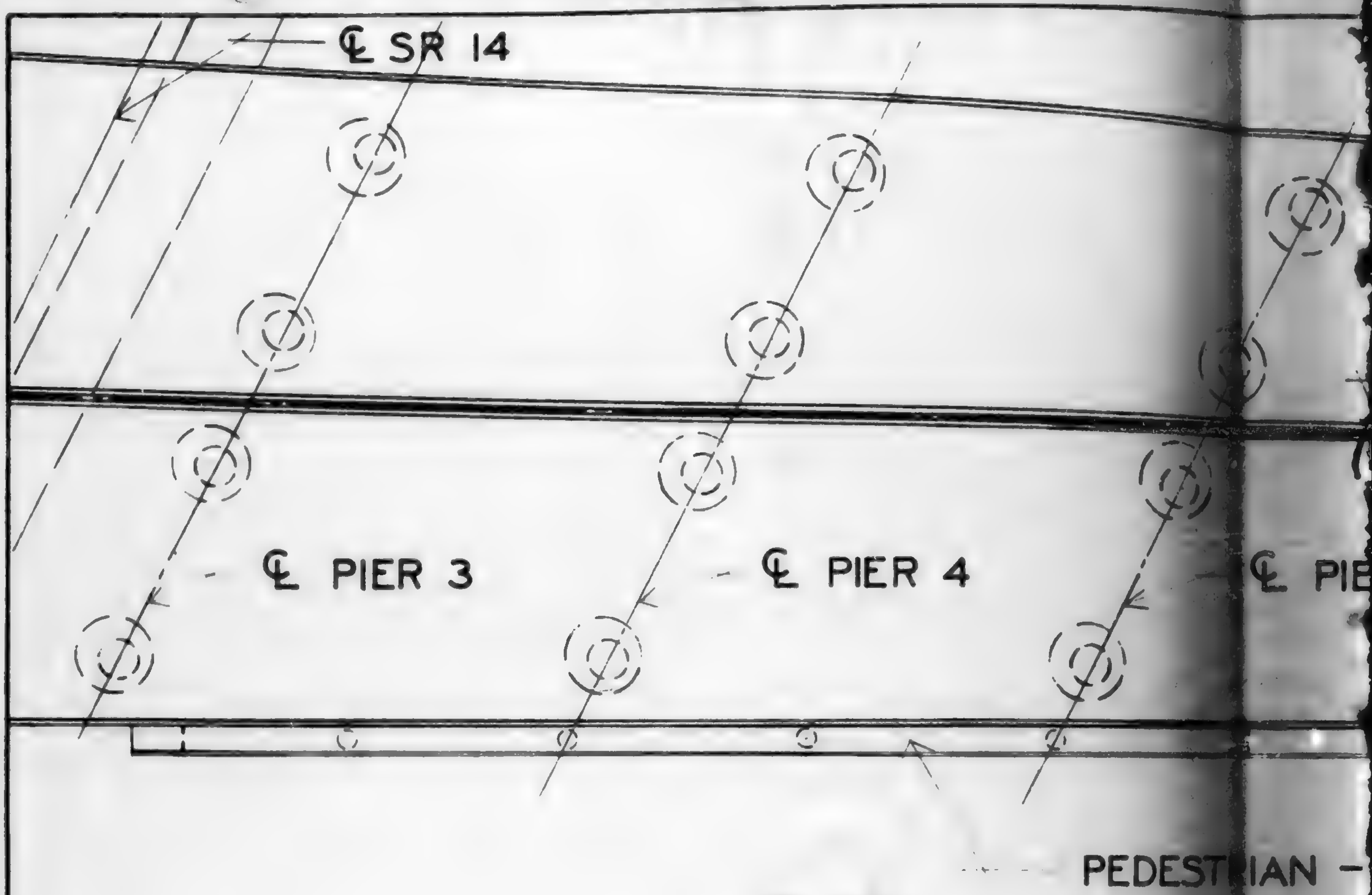


PRECAST PATH ON CENTERLINE

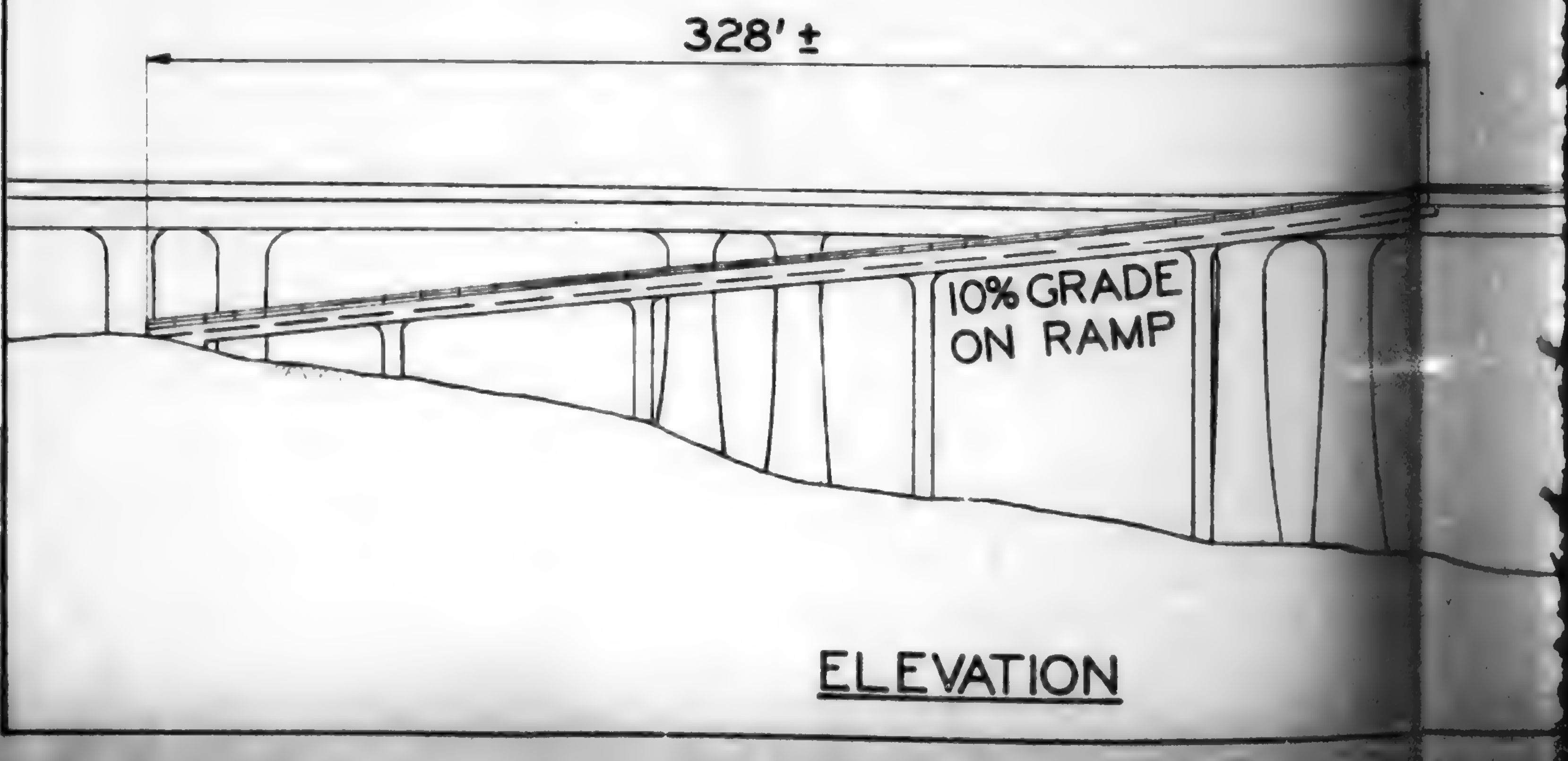


EXPANSION PLATE

PLATE 2

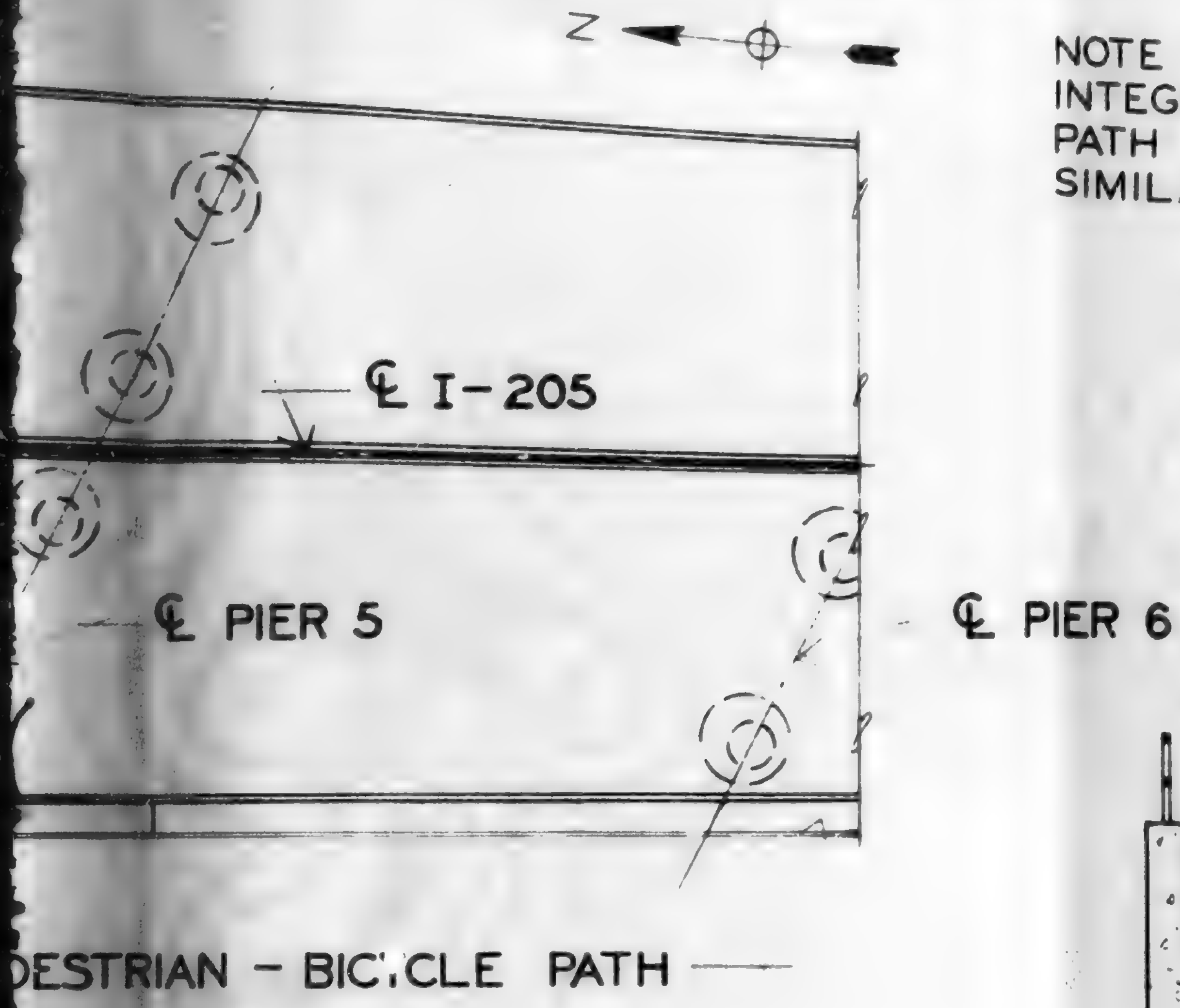

℄ SR 14
℄ PIER 3
℄ PIER 4
℄ PIE
PEDESTRIAN

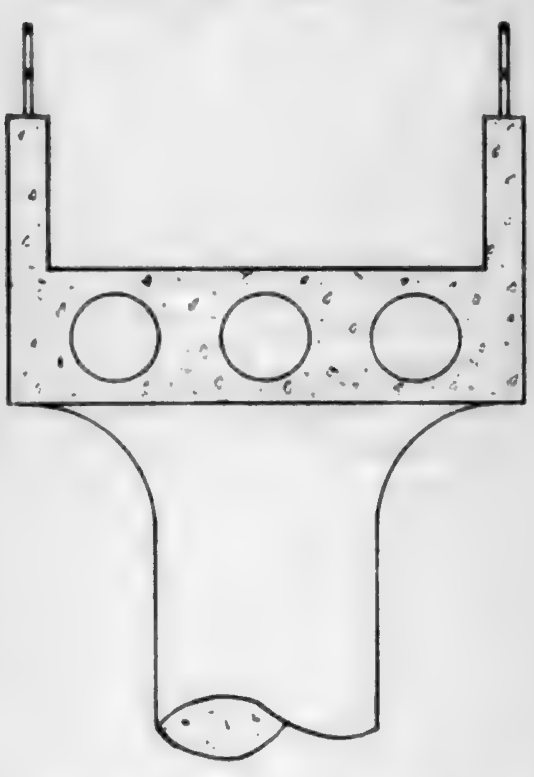
PLAN


328' ±
10% GRADE ON RAMP

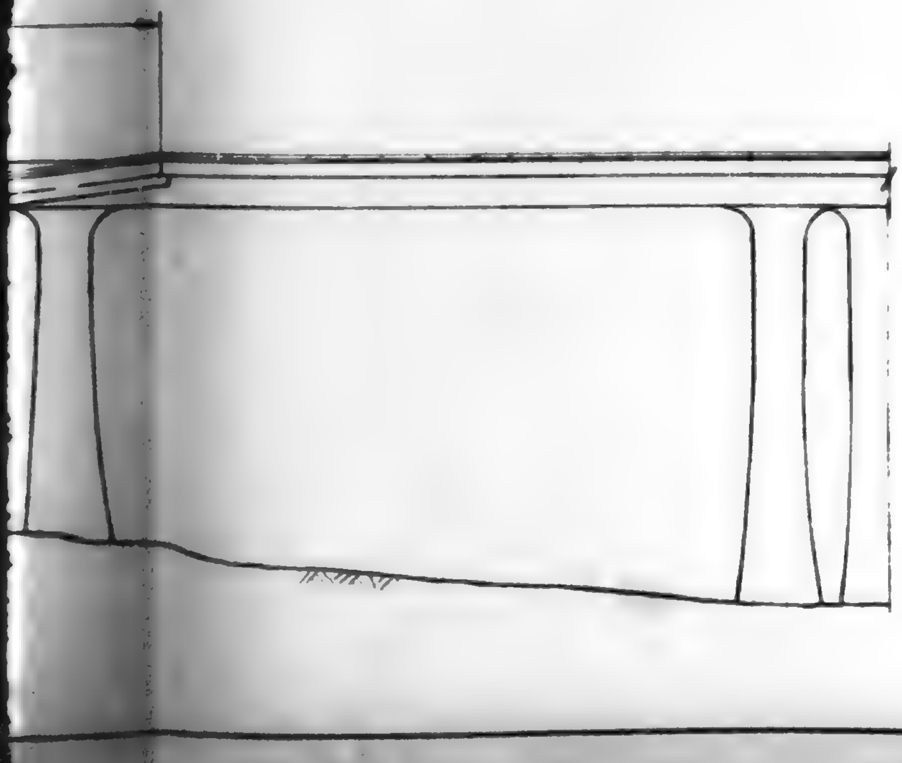
ELEVATION

NOTE: RAMP SHOWN FOR INTEGRAL SIDE MOUNTED PATH OTHER RAMP SCHEMES SIMILAR.


N
℄ I-205
℄ PIER 5
℄ PIER 6
DESTRIAN - BICYCLE PATH

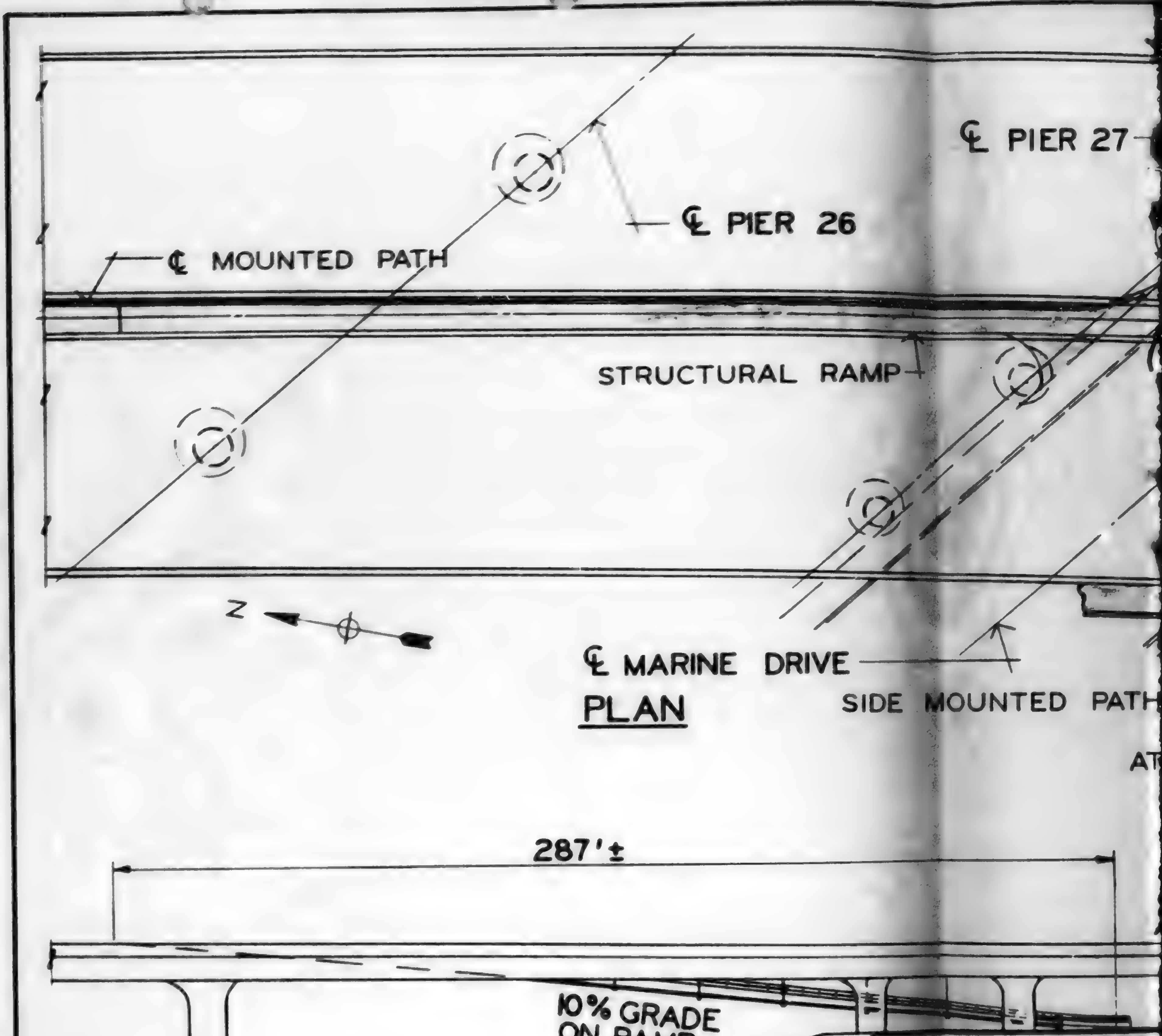


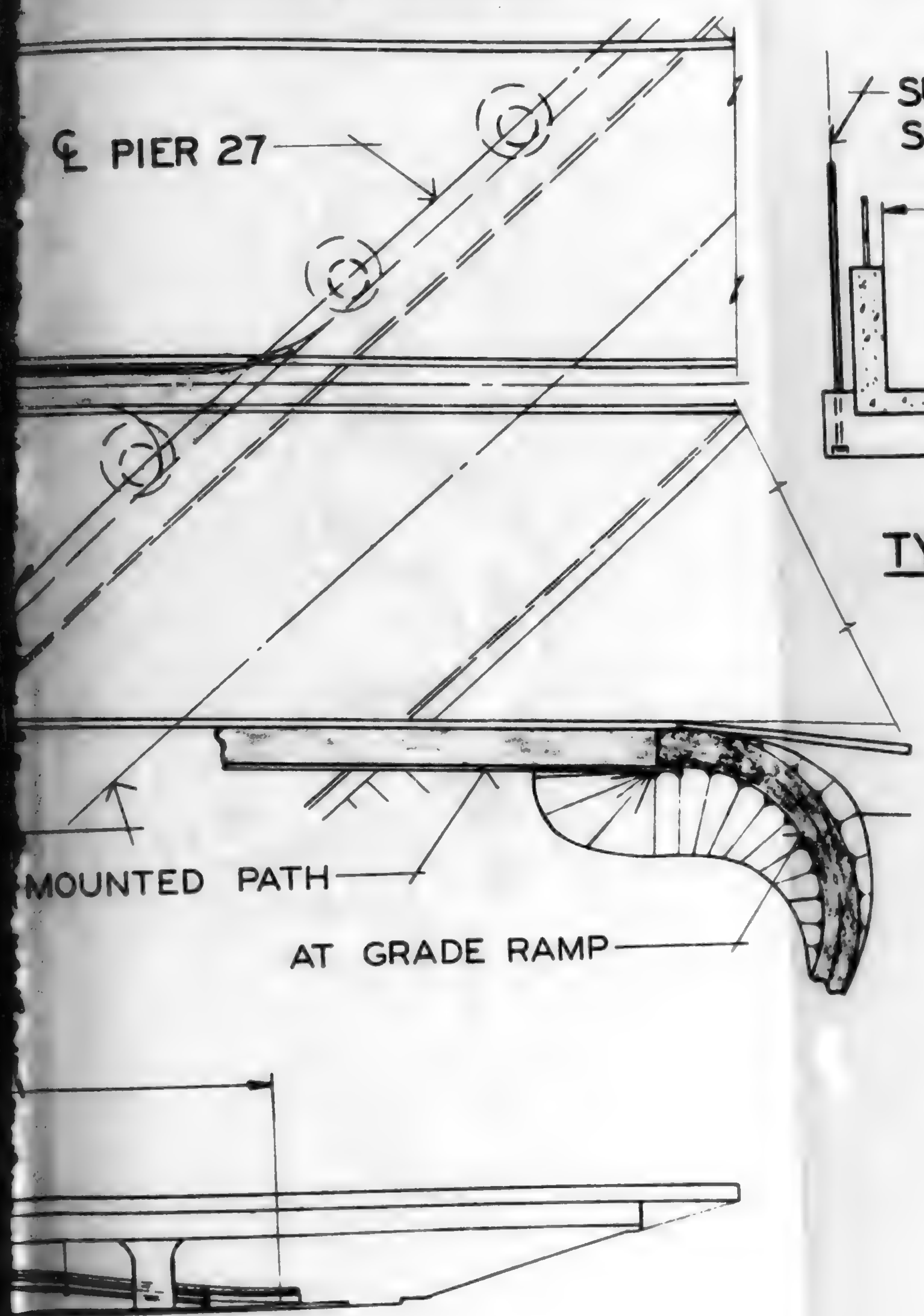
TYPICAL SECTION OF RAMP

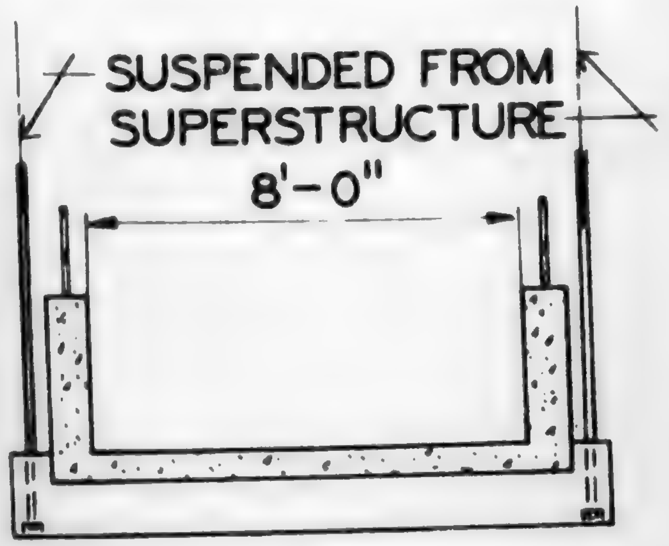


ACCESS TO PATH
AT SR-14

PLATE 3


℄ PIER 27
℄ PIER 26
℄ MOUNTED PATH
STRUCTURAL RAMP
Z
℄ MARINE DRIVE
PLAN
SIDE MOUNTED PATH
AT
287'±
10% GRADE
ON RAMP
ELEVATION

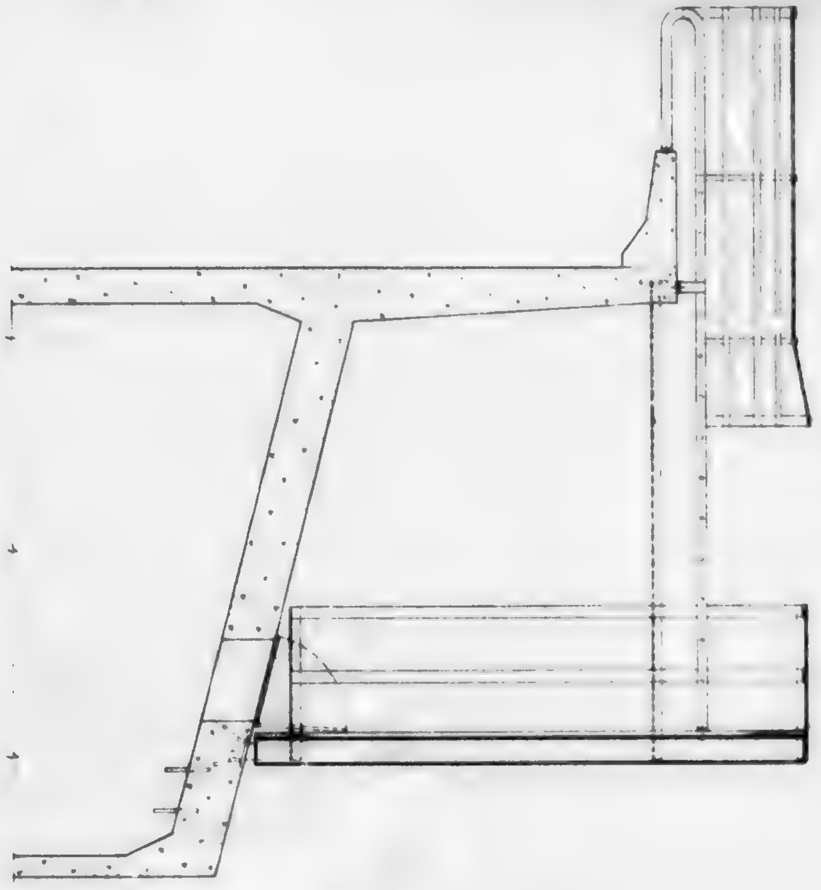

℄ PIER 27
MOUNTED PATH
AT GRADE RAMP


SUSPENDED FROM SUPERSTRUCTURE
8'-0"

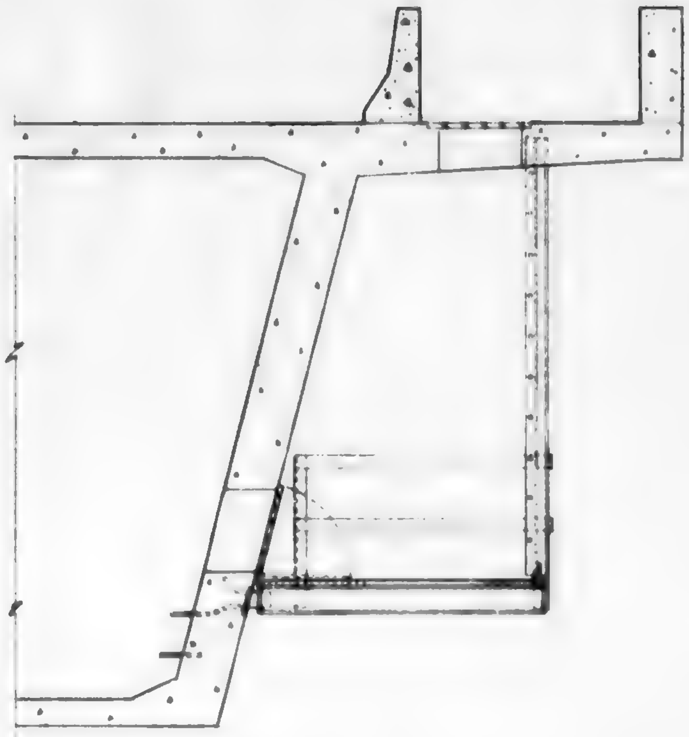
TYPICAL SECTION OF RAMP

ACCESS TO PATH
AT MARINE DRIVE

PLATE 4



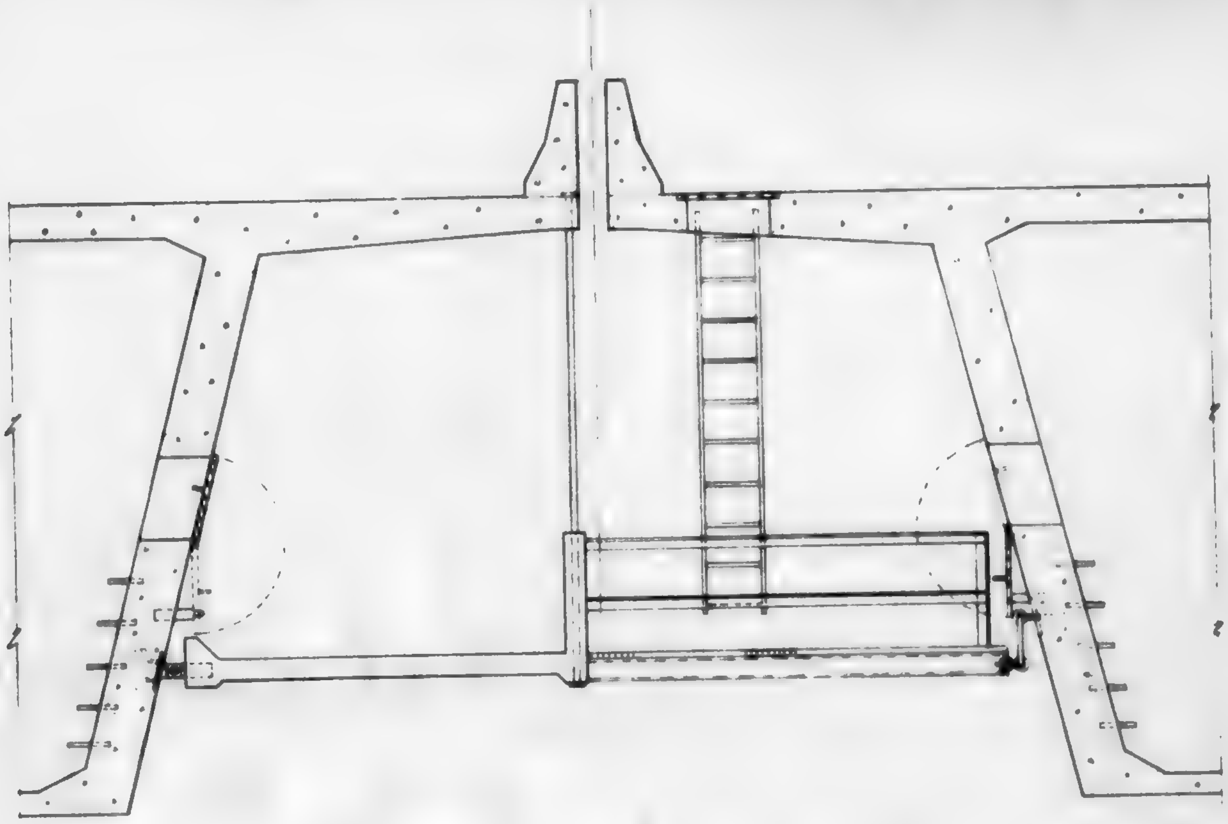
WITHOUT PATH



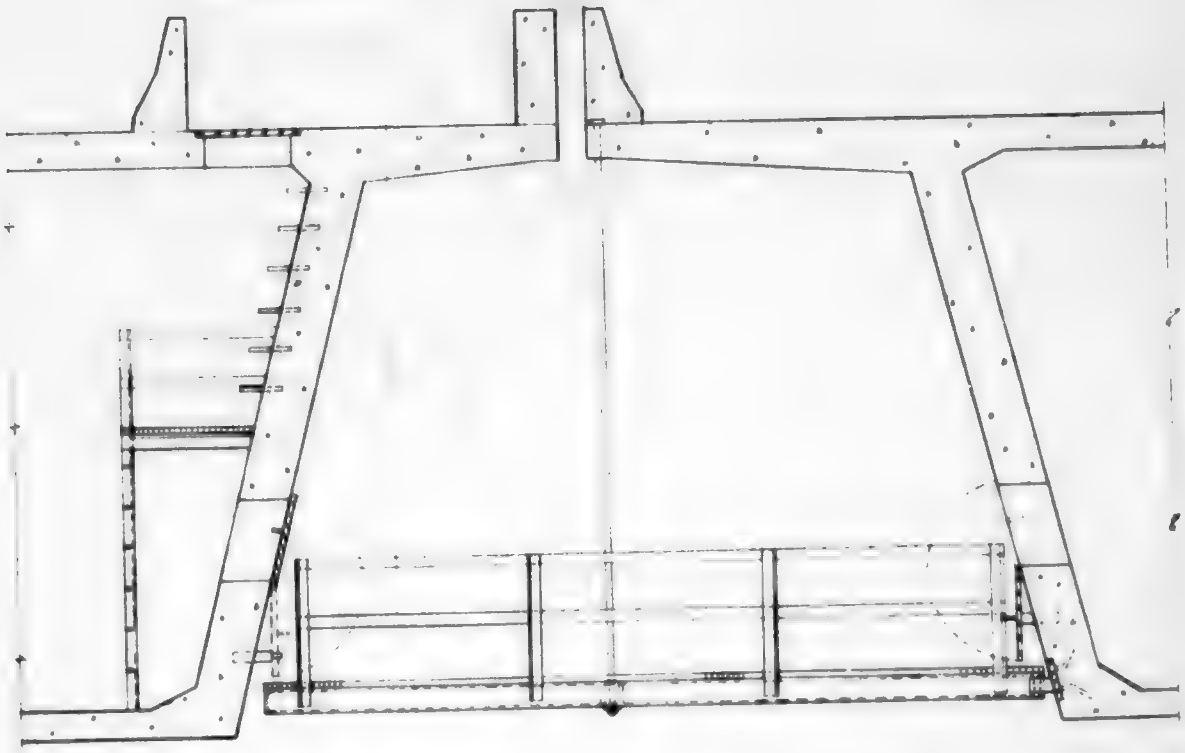
WITH PATH

## INSPECTION ACCESS

PLATE 5



WITH SUSPENDED PATH



WITH 8' INTEGRAL PATH

## INSPECTION ACCESS

PLATE 6

8105
Bikeway

RECEIVED
JAN 5 = 1972
FOR FILING

January 4, 1973

Mr. Glen L. Green
Division Engineer
Federal Highway Administration
Box 300
Salem, OR 97308

Dear Mr. Green:

Pedestrian-Bikeway Study
Second Amendment
I-205 Columbia River Bridge
Bridge No. 9555
Your File 08-35-ED

Enclosed are four copies of the second amendment to the State's original agreement of September 30, 1970 for a pedestrian-bikeway feasibility study on the subject project, endorsed by Sverdrup & Parcel & Associates. Work under the first amendment provided a bikeway feasibility study with cost estimates for alternate bikeway locations on the structure and this work is now complete.

On November 21, 1972 a meeting was held with interested parties on the necessity for another study to include alternates not heretofore considered. Federal Highway Administration officials attending this meeting were Messrs. Tokerud and Schell. It was decided that an additional study would make it possible to explore certain bikeway designs for which construction costs might be less than those considered in the first study.

The consultant was directed to evaluate and make cost estimates for a five-foot wide path instead of the eight-foot path previously considered and for paths constructed of precast units supported on brackets. Comparisons are to be made among all alternates, including the new ones and those evaluated in the first study.

The fee schedule shown in the second amendment is similar to that of the first amendment and is considered reasonable since the cost of the first amendment totaled $5,234 (estimated at $7,000) with a fixed fee of $800. The cost of the second amendment is estimated to be $5,000 with a fixed fee of $400 and the work involves the same number of alternates as the first, plus a summary comparison.

This matter was discussed with Mr. Schell on November 24, 1972 and he gave his tentative verbal approval to proceed with the work under the second amendment. May we have your concurrence and confirmation of the above date for authorization to proceed with this work?

Very truly yours,

ORIGINAL SIGNED BY
A. E. JOHNSON jo

A. E. Johnson
Assistant State Highway Engineer

Attachment

cc Mr. W. M. Foster
Washington State
Highway Department

Mr. R. Jack Allen
Sverdrup & Parcel & Associates

bc George M. Baldwin
F. B. Klaboe
Walter J. Hart
V. E. Skoog
Paul L. Hatcher
Victor D. Wolfe
H. S. Coulter

RJW:dh ja

1979 Columbia R. Br. (N. Channel 890
Superstruc.) I-205
Pedestrian Crossing & Bikeway #1

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| RDB | RDB |  | RJA |  |
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| GDM |  |  | EAK |  |
| ALP |  |  | PAT |  |

JOB 3360

**OREGON STATE**
**HIGHWAY DIVISION**

HIGHWAY BUILDING • SALEM, OREGON • 97310

8905
Sp
Col. R. Br
Bikeway

December 27, 1972

Mr. R. D. Bane, P.E.
Assistant Vice President
Sverdrup & Parcel & Associates, Inc.
P. O. Box 369
Bellevue, Washington 98004

cy I. E. Foster
Skoog
Hall
Hart
H. L. Coulter
V. D. Halfe
1-2-73

Dear Sir:

I-205 Columbia River Bridge
Bridge No. 9555
Pedestrian-Bikeway Study
Second Amendment

**NOTED**
**A. E. JOHNSON**

By the March 22, 1972 letter-amendment to the State's agreement with you dated September 30, 1970, you agreed to make a pedestrian-bikeway feasibility study for the subject project. The study has been completed and a report submitted providing cost estimates and alternate locations for a bikeway.

By our November 28, 1972 letter, you were requested to make an additional bikeway study to include alternates not heretofore considered. The new study will provide cost estimates for a five-foot wide path instead of the eight-foot path previously considered, and paths constructed of precast units supported by brackets. Comparisons will be made among all alternates, both the new ones and those previously considered.

On December 21, 1972, Mr. Walter J. Hart discussed with you the addition of a fixed fee to this amendment, which is as shown below.

It is agreed that your compensation for work done as outlined in this second amendment and our November 28, 1972 letter shall be as follows:

RECEIVED
DEC 29 1972
SVERDRUP & PARCEL
& ASSOCIATES INC.

1. Salaries and Overhead = productive payroll costs multiplied by 1.95.
2. Direct costs = computer time, printing, et cetera.
3. Fixed Fee = $400.

It is estimated that the total cost of the work to be done under this second amendment will not exeed $5,000.

If this second amendment is satisfactory, please indicate your approval by endorsing the original of this letter in the space provided and return it to me.

Very truly yours,

A E Johnson

A. E. Johnson
Assistant State Highway Engineer

Amendment satisfactory to
Sverdrup & Parcel & Associates, Inc.

R. D. Bane
By

Dec. 30, 1972
Date

cc Mr. W. M. Foster
Washington State Highway Department

RECEIVED
JAN 8 1973
OFFICE OF
A. E. JOHNSON
ASSISTANT STATE HIGHWAY ENGINEER

**REGIONAL PLANNING COUNCIL OF CLARK COUNTY**

2400 "T" STREET VANCOUVER, WASHINGTON 98661
PHONE 1 206 699-2361
TOM JENKINSON PLANNING DIRECTOR

DEC 18 1972

December 15, 1972

Mr. Richard Carroll, District Engineer
Washington State Department of Highways
P. O. Box 1717
Vancouver, Washington

Dear Dick:

Regional Planning Council has previously written on behalf of the inclusion of a bicycle and pedestrian route on the I-205 Columbia River Bridge. (See letters of May 23, 1972, to Mr. George Andrews, Washington State Highway Department, and May 24, 1972, to Department of Transportation, State of Oregon, Attn: Dorland E. Swan. Carbons of each should be in your files.)

Since last May the staff of Regional Planning Council has prepared a draft proposal "Bikeways Plan". An abstract and summary of that plan are enclosed with this letter.

Research continued during the summer months verified many of the tentative findings of last spring and reported in the May 24 letter referred to above. Two of these bear particular significance with respect to the I-205 bridge. Evergreen Highway, a north bank Columbia River bikeroute, has proved to be very popular with Clark County bicyclists in spite of the lack of route markers or adequate speed control for vehicular traffic. Bicycle traffic over the I-5 bridge (Vancouver to Hayden Island) has increased noticeably with commuter use becoming apparent to even the casual observer for the first time.

The hypothesized attractiveness of scenic and recreational areas as the destination of most recreational riding was verified. It appears, in fact, that as far as local trips are concerned, people ride bicycles for much the purpose, (commuting, recreation, shopping, school) that one might drive an automobile. Furthermore, the bicyclist tends to select his route similarly to the way a motorist

selects his route, albeit a difference in scale. If this very general observation can be applied to a particular case, the I-205 bridge; it follows that the proportion of local trips (automobile) to local trips (bicycle) will tend to be constant for traffic on the I-205 bridge. The constraint of no alternative route availability will certainly reinforce this condition.

In the five and a half miles separating the I-5 and I-205 bridges there are three water access parks on the Washington side of the river totaling less than two thousand feet of frontage. On the Oregon side in the same five and a half miles, over two miles are public beaches, and much of the remaining three and a half miles is oriented toward commercial recreation. Obviously a large number of users of these Oregon beaches (as well as Blue Lake Park, and Delta Park, both nearby) will be residents of the Washington side. There are well over fifteen thousand such residents of Clark County within twenty minutes bicycle riding time of the bridge (about a three mile radius)-- a population that is increasing at about 11% per year. This implies a doubling of that population in less than ten years and a stable population (at saturation density) of about fifty thousand within twenty years. Studies in Portland, Oregon, Eugene, Oregon, and nationally have indicated the bicycle ownership rate to be from .3 to .46 bicycles per person or about two bicycles per family of four individuals. We feel confident in assuming the Portland ratio (.46) to hold true here in the urban portion of Clark County. It follows that the present potential Clark County user population of that bridge for bicycling is not less than seven thousand individuals and it will increase in at least direct proportion to the increase in population.

Planning of bikeways in the Portland-Vancouver metropolitan area has proceeded from the start with the assumption that a bikeway system must be regionally coordinated. To this end, the Columbia Region Association of Governments has provided a regional framework for the efforts of individual jurisdictions. The plans of Clark County, the City of Portland, Multnomah County and the Port of Portland all anticipate the availability of right-of-way on the I-205 bridge for bicycle and pedestrian use.

We hope the information provided here will be of some assistance in your effort to satisfy the considerable public desire for a bicycle and pedestrian right-of-way on the I-205 bridge. We very much appreciate your interest and enthusiasm in this project.

Yours truly,

Tom

T. Jenkinson
Director

TJ:JMP:imd

Encl.

cc: CRAG
Dorland Swan

# BIKEWAYS MASTER PLAN ABSTRACT

The purpose of this report is to examine the extent of need for and the feasibility of a Bikeways system. Based on findings by surveys, interviews, and research into solutions proposed nationally, a report has been prepared which includes a plan for improvement of existing and proposed transportation facilities with respect to bicycle usage. The plan provides standards for facility development, priorities and criteria for updating the priorities.

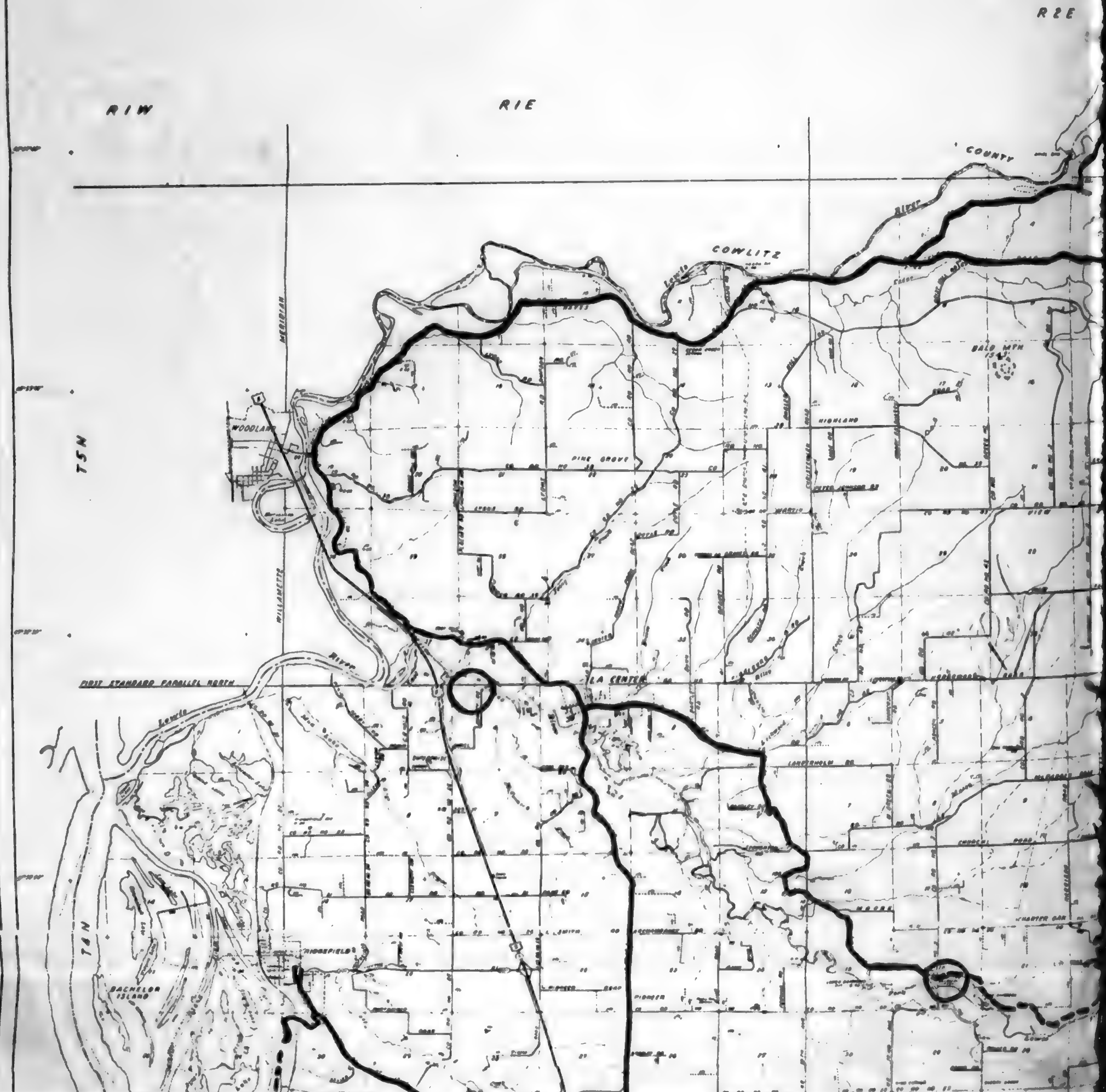
In this plan bicycle use is treated as both recreational and utilitarian. The major emphasis in system design is to increase the relative safety of the bicyclist regardless of his particular reason for riding.

Utility rights-of-way and easements were studies for use as bikeways in the initial planning stages. Existing road conditions were studied and route logs compiled. Findings from this phase of the study were compared with road standards and particular attention was directed to substandard roads on the assumption that these posed the least safe riding environments. Finally priorities were developed based on rider travel desires and the indicated need for improvement. The system thus developed was reviewed with respect to the county transportation plan, State Highway Department plans, and local parks and recreation and trails plans.

Coordination at the regional level has been accomplished through the aegis of the Columbia Region Association of Governments which is coordinating all bicycle facilities planning in the five county region.

# ROAD MAP OF
# CLARK COUNTY
# WASHINGTON

1968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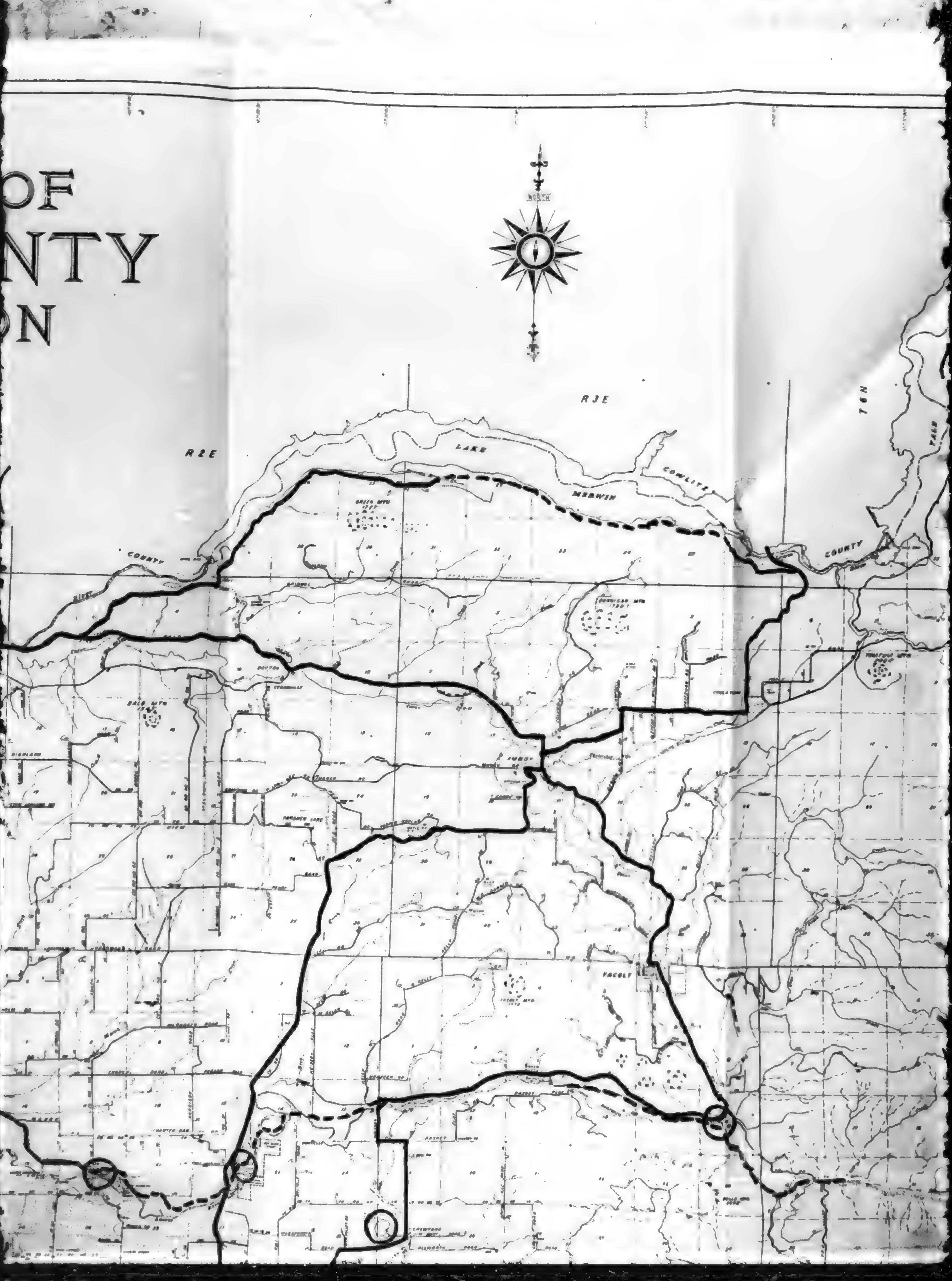
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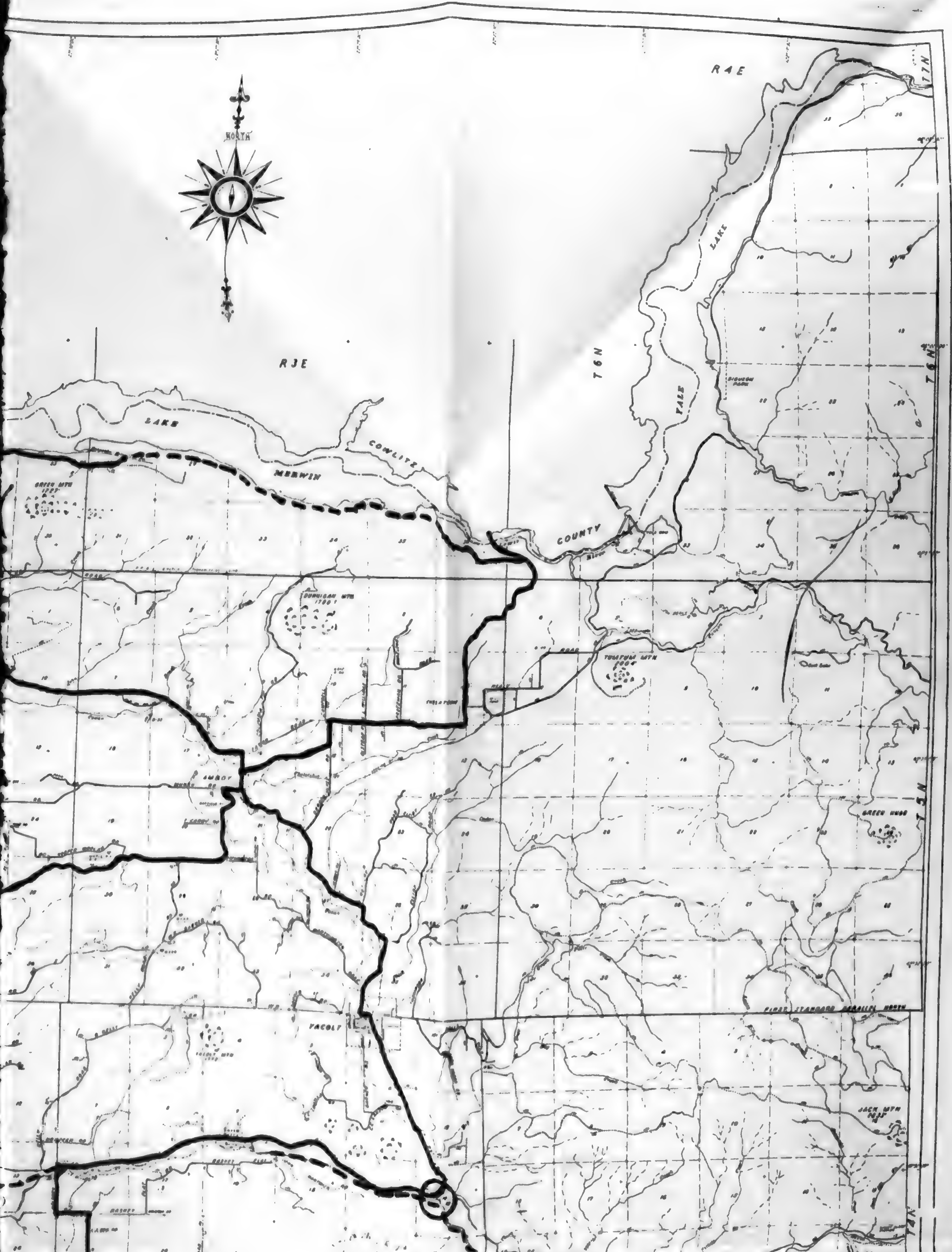
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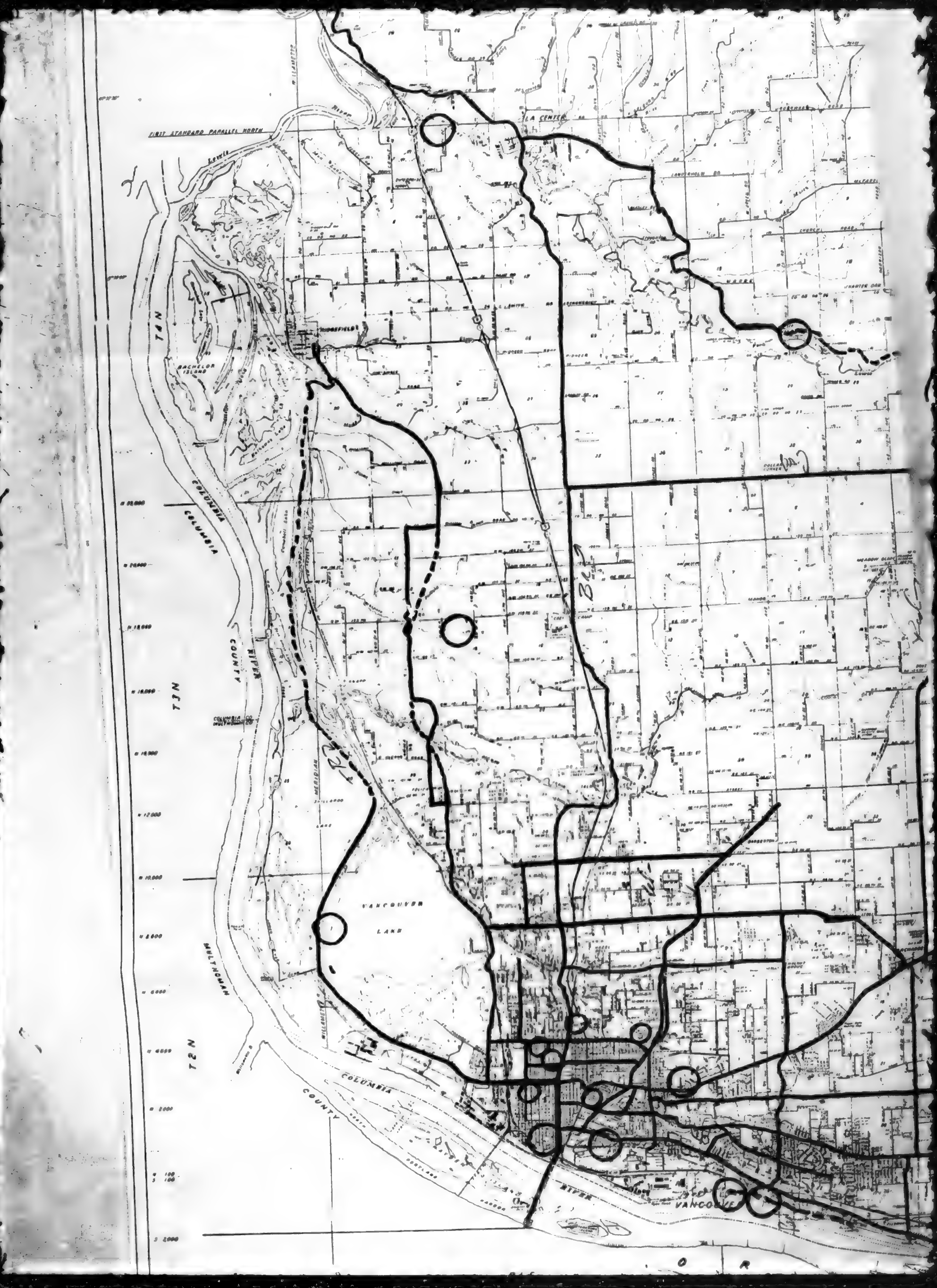
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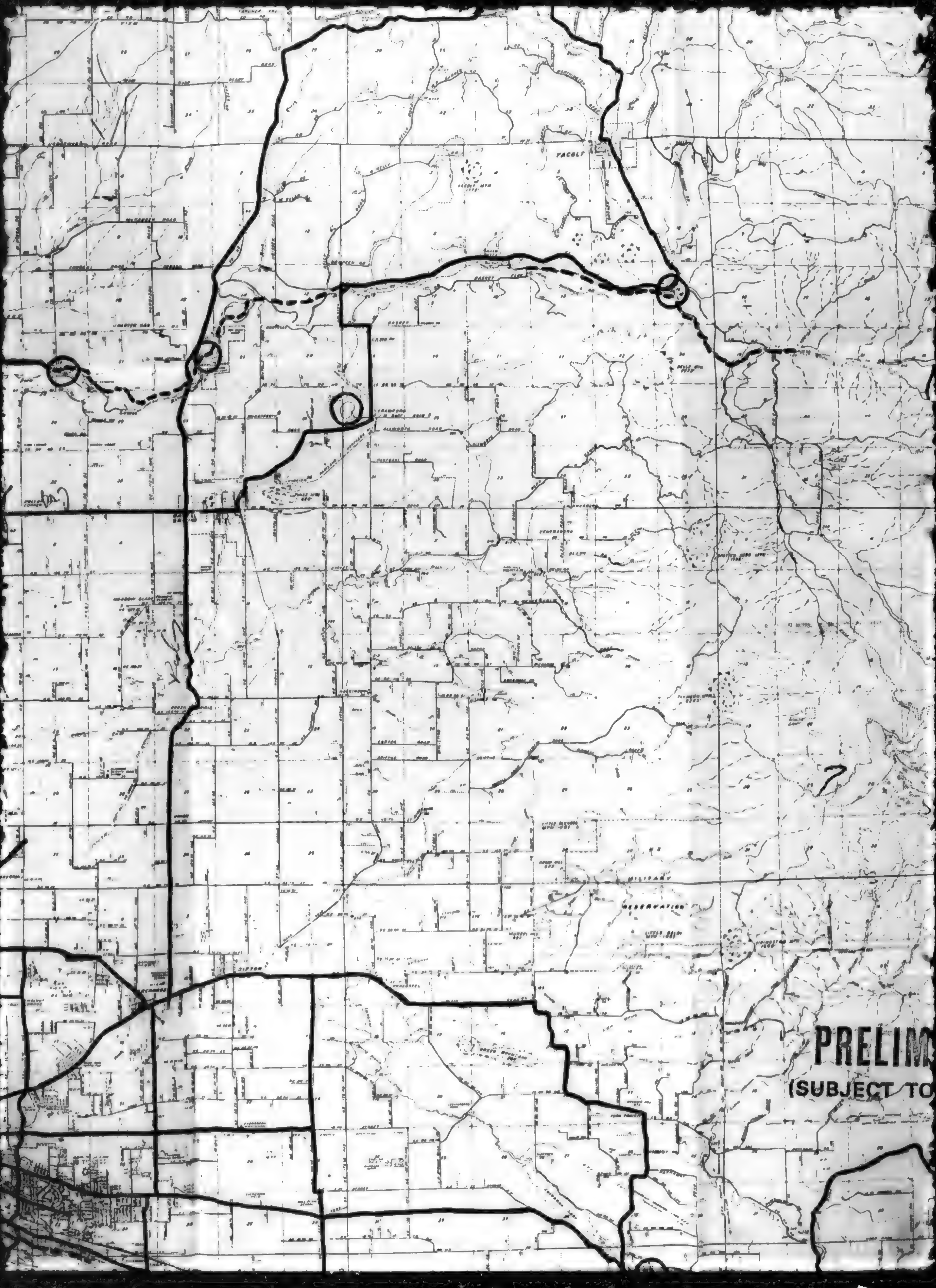
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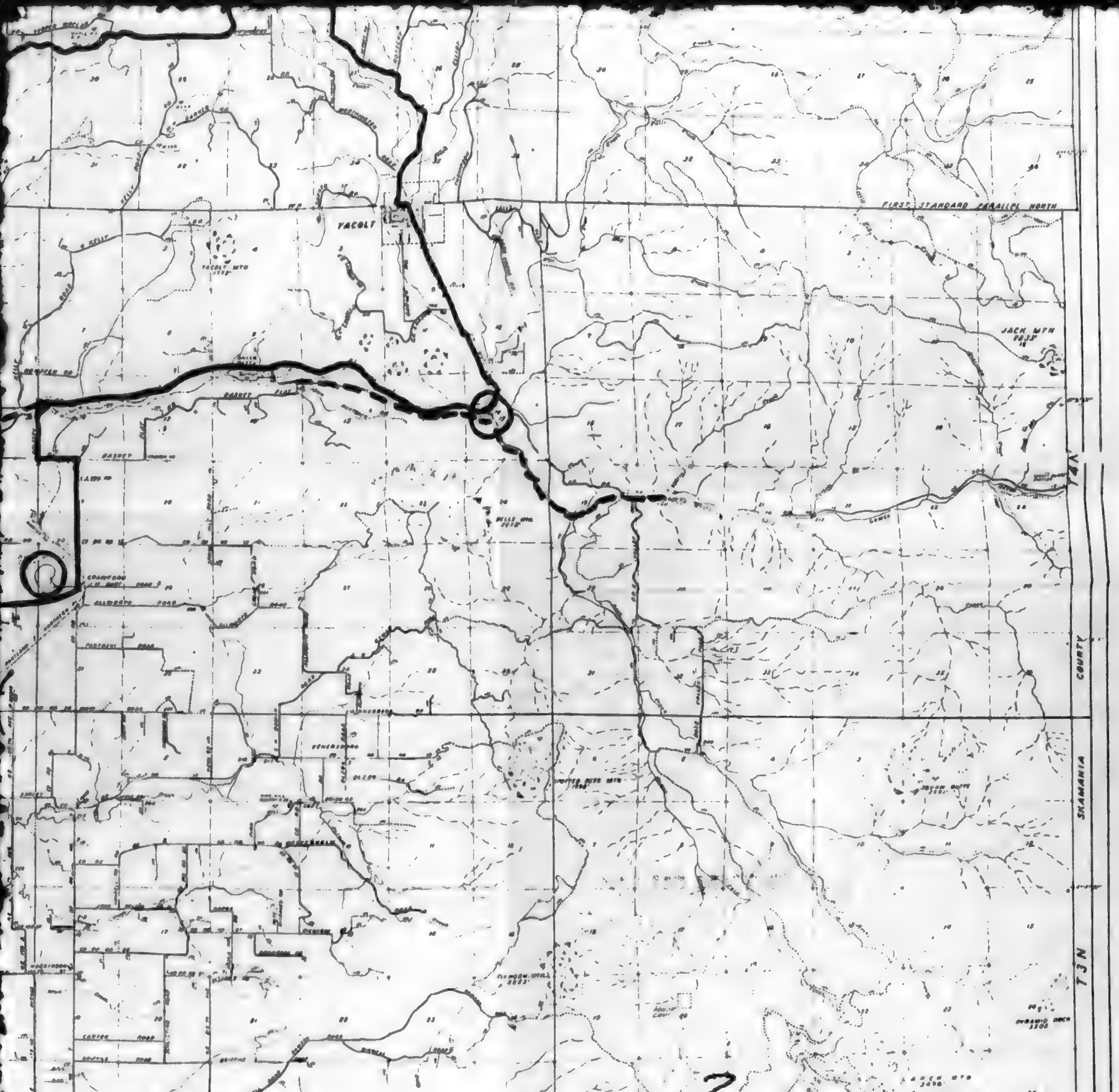
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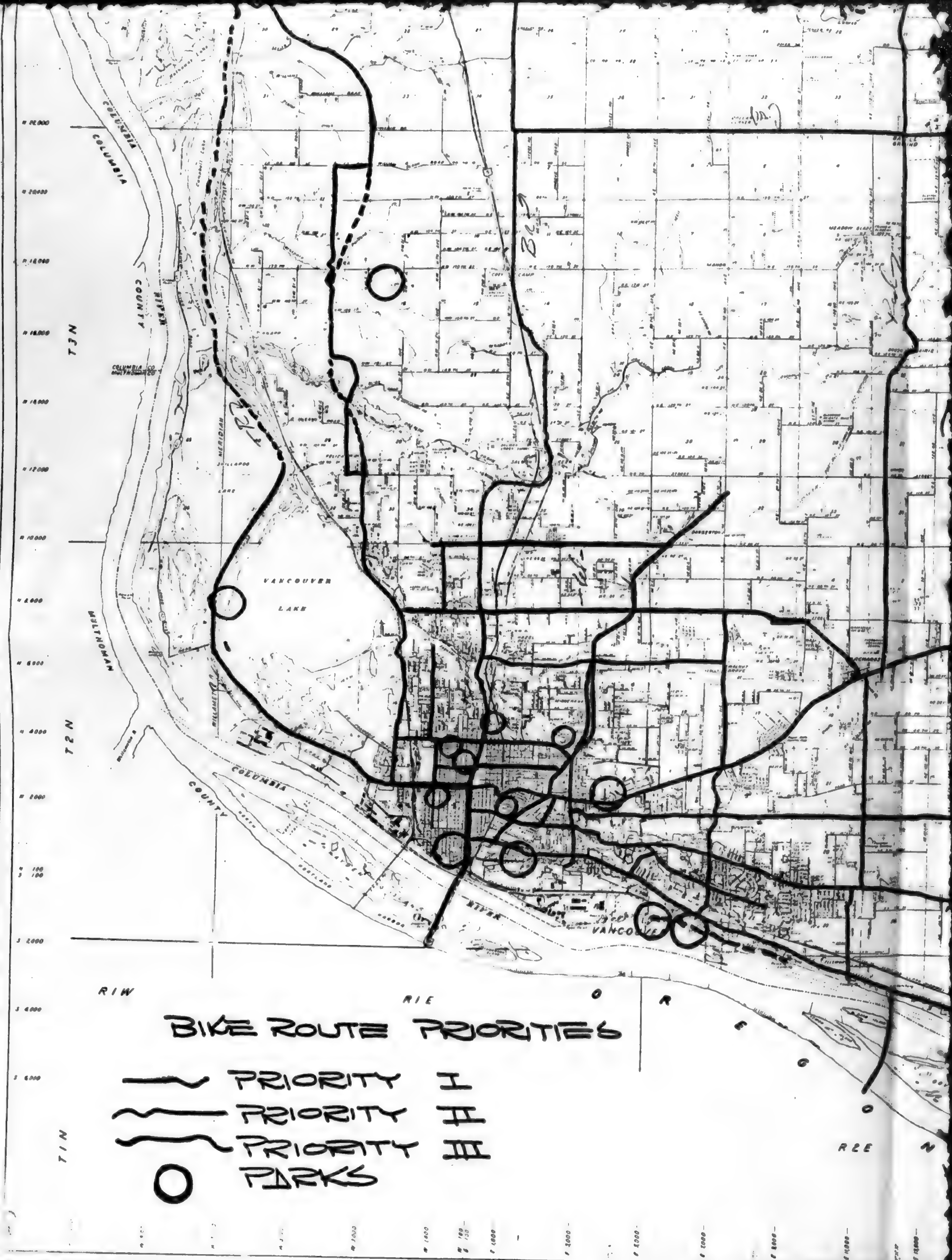BIKE ROUTE PRIORITIES
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PRIORITY III
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COLUMBIA RIVER
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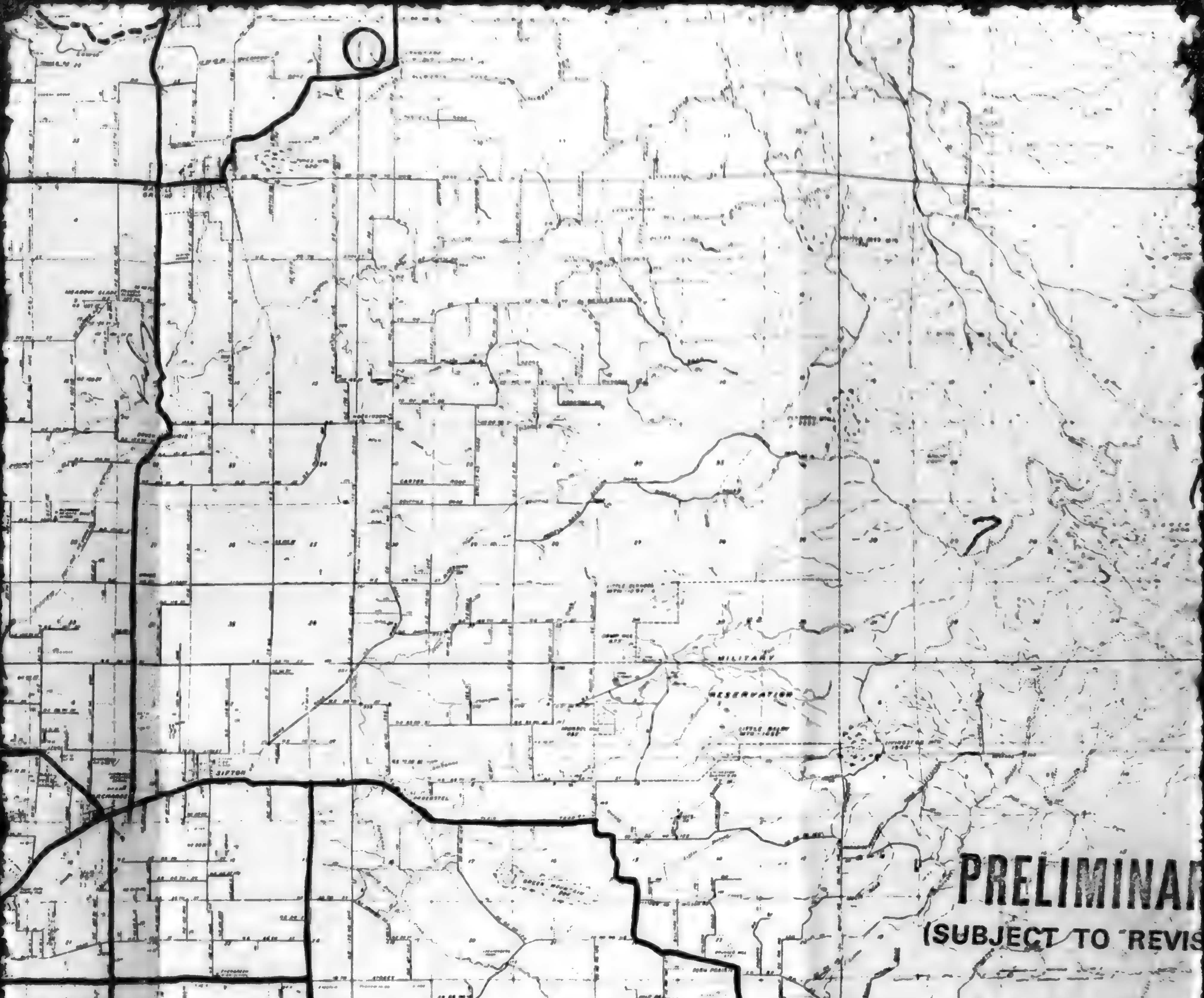
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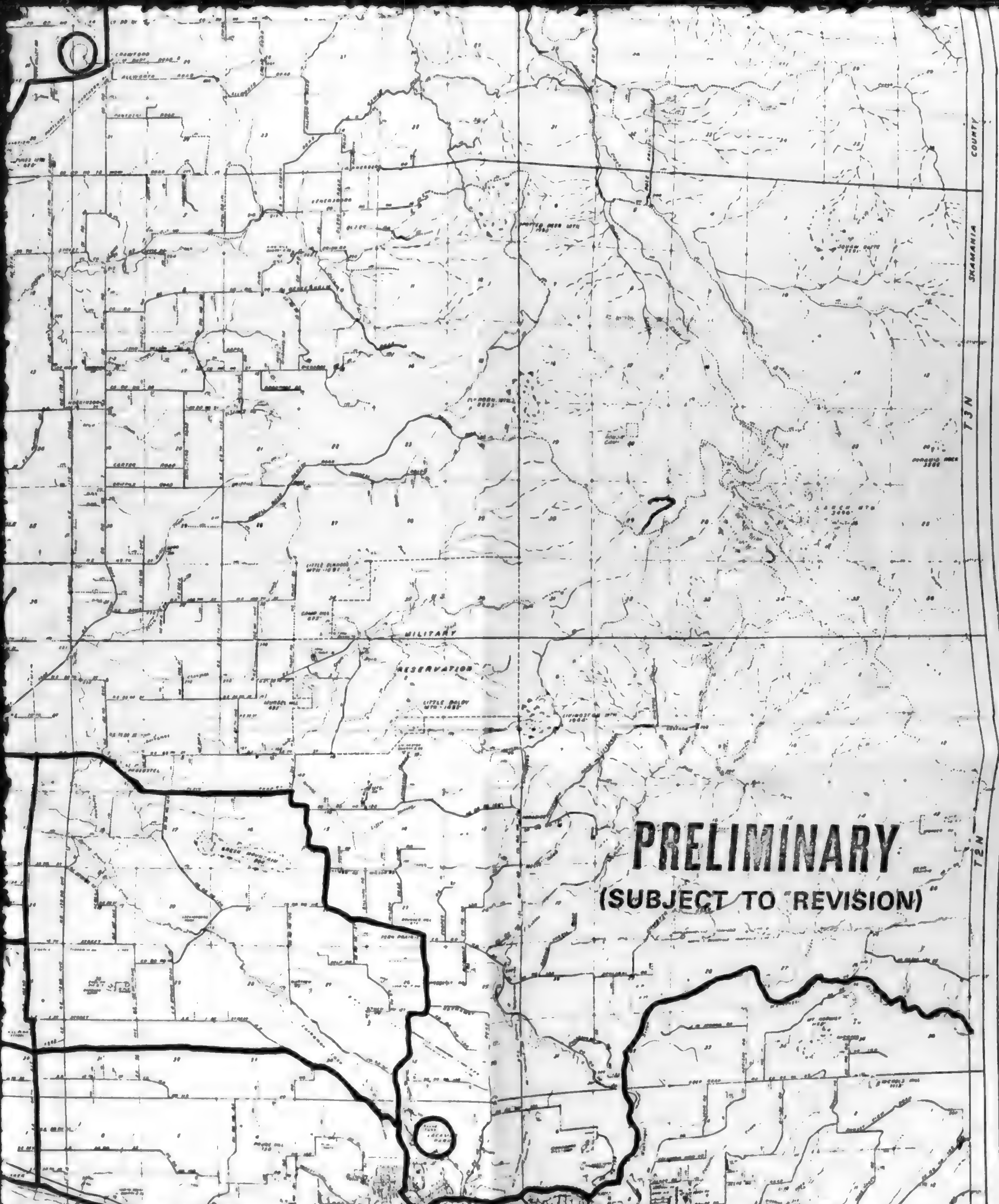
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PRELIMINARY
(SUBJECT TO REVISION)

8905

RECEIVED
DEC 20 1972

Bikeway FOR FILING

December 18, 1972

Mr. R. D. Bane, P.E.
Assistant Vice President
Sverdrup & Parcel & Associates, Inc.
P. O. Box 369
Bellevue, Washington 98004

Dear Mr. Bane:

I-205 Columbia River Bridge
Bridge No. 9555
Pedestrian-Bikeway Study
Second Amendment

By the March 22, 1972 letter-amendment to the State's agreement with you dated September 30, 1970, you agreed to make a pedestrian-bikeway feasibility study for the subject project. Such a study has been completed and a report submitted providing cost estimates and alternate locations for a bikeway.

By letter dated November 28, 1972, you were requested to make an additional bikeway study to include alternates not heretofore considered. The new study will provide cost estimates for a five-foot wide path instead of the eight-foot path previously considered and paths constructed of precast units supported by brackets. Comparisons will be made between all alternates, both the new ones and those previously considered.

It is agreed that your compensation for work done as outlined in this second amendment and our November 28, 1972 letter to you shall be as follows:

1. Salaries and Overhead = Productive Payroll Costs multiplied by 1.95.
2. Direct costs = computer time, printing, et cetera.
3. No fixed fee.

It is estimated that the total cost of the work to be done under this second amendment will not exceed $5,000.

If this second amendment is satisfactory to you, please indicate your approval by endorsing the original of this letter in the space provided and return it to me.

Very truly yours,

A. E. Johnson
Assistant State Highway Engineer

cc Mr. W. M. Foster
Washington State
Highway Department

Amendment satisfactory to
Sverdrup & Parcel & Associates, Inc.

______________________________
By

______________________________
Date

bc George M. Baldwin
Tom Edwards
F. B. Klaboe
Walt Hart (2)
V. E. Skoog
H. S. Coulter

RJW:dh ja

8905,
Bike

RECEIVED
DEC 20 1972
FOR FILI

REGIONAL PLANNING COUNCIL
OF CLARK COUNTY

2400 "T" STREET VANCOUVER, WASHIN
PHON
TOM JENKINSON PLANNING DIRECTOR

RECEIVED
DEC 21 1972
OFFICE OF
ASSISTANT STATE HIGHWAY ENGINEER

December 15, 1972

METROPOLITAN ENGINEER
RECEIVED
DEC 18 1972
☒ ME ☐ AME ☐ AME ☒ MOE ☐ MDE ☐ MTE

Mr. Richard Carroll, District Engineer
Washington State Department of Highways
P. O. Box 1717
Vancouver, Washington

Dear Dick:

Regional Planning Council has previously written on behalf of the inclusion of a bicycle and pedestrian route on the I-205 Columbia River Bridge. (See letters of May 23, 1972, to Mr. George Andrews, Washington State Highway Department, and May 24, 1972, to Department of Transportation, State of Oregon, Attn: Dorland E. Swan. Carbons of each should be in your files.)

Since last May the staff of Regional Planning Council has prepared a draft proposal "Bikeways Plan". An abstract and summary of that plan are enclosed with this letter.

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NOTED
E. S. HUNTER cc McClure

CLARK COUNTY
EVERGREEN SCHOOL DISTRICT
TOWN OF BATTLEGROUND
CLARK SKAMANIA SOIL & WATER CONSERVATION DISTRICT
CITY OF VANCOUVER
CENTRAL LABOR COUNCIL
VANCOUVER HOUSING AUTHORITY
CLARK COUNTY PUBLIC UTILITY DISTRICT
VANCOUVER CHAMBER OF COMMERCE
CLARK COUNTY SEWER DISTRICT NO. 1
CITY OF CAMAS
CITY OF WASHOUGAL
VANCOUVER SCHOOL DISTRICT
TOWN OF RIDGEFIELD
TOWN OF LA CENTER
PORT OF VANCOUVER

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We hope the information provided here will be of some assistance in your effort to satisfy the considerable public desire for a bicycle and pedestrian right-of-way on the I-205 bridge. We very much appreciate your interest and enthusiasm in this project.

Yours truly,

Tom

T. Jenkinson
Director

TJ:JMP:imd

Encl.

cc: CRAG
Dorland Swan ✓

# BIKEWAYS MASTER PLAN ABSTRACT

The purpose of this report is to examine the extent of need for and the feasibility of a Bikeways system. Based on findings by surveys, interviews, and research into solutions proposed nationally, a report has been prepared which includes a plan for improvement of existing and proposed transportation facilities with respect to bicycle usage. The plan provides standards for facility development, priorities and criteria for updating the priorities.

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Coordination at the regional level has been accomplished through the aegis of the Columbia Region Association of Governments which is coordinating all bicycle facilities planning in the five county region.

8905
Bikeway

RECEIVED
DEC 14 1972
FOR FILING

SVERDRUP & PARCEL AND ASSOCIATES, Inc.
*Consulting Engineers*
505 - 106TH AVENUE N. E.
P. O. BOX 369
BELLEVUE, WASHINGTON 98004

December 8, 1972

Klaiber
cy- Harvie
Hart
Haefle
12-11-72

Oregon State Highway Division
Highway Building
Salem, Oregon 97310

Attention: Mr. A. E. Johnson
Assistant State Highway Engineer

Gentlemen:

This will acknowledge receipt of your letter dated November 28, 1972, referring to comparative studies of pedestrian-bike path alternates. The studies are in progress and we will submit the results very soon.

We understand that this work will be covered under the terms of our supplemental letter agreement dated March 29, 1972. It is estimated that the total cost, including the previously submitted study, will not exceed $10,000.00.

Very truly yours,

SVERDRUP & PARCEL AND ASSOCIATES, Inc.

R. D. Bane

R. D. Bane, P. E.
Regional Manager

cc: H. Scott Coulter

8905
Bikeway

[illegible]
1972
FOR FILE

November 28, 1972

Mr. Jack Allen, Project Manager
Sverdrup & Parcel & Associates, Inc.
P. O. Box 369
Bellevue, Washington 98004

Dear Mr. Allen:

As a result of our recent meeting with members of your firm, Federal Highway Administration officials, and Washington State Highway officials, we are requesting that you submit a comparison study of the following pedestrian-bike path alternates on the I-205 Columbia River Bridge:

1. A five-foot wide, poured-in-place path on the outside of one or both structures.
2. An eight-foot wide, poured-in-place path on the outside of one or both structures.
3. Same as Item 1 above, precast supported on brackets.
4. Same as Item 2 above, precast supported on brackets.
5. An eight-foot wide path between roadways at deck level.
6. An eight-foot wide path between roadways suspended below deck level as required to provide a minimum of ten feet vertical clearance.

It is not necessary that the study go into great detail, but it should include the estimated cost of each feasible alternate, its advantages and disadvantages, and its possible economic return in multiple usage for drainage, emergency access and economic access.

We are enclosing a copy of our "Footpath and Bike Routes Standards and Guidelines" for your information.

Since the final cross section will be dependent upon the bike path decision, it is suggested that you limit your present design activities to areas not affected by this decision.

Very truly yours,

A. E. Johnson
Assistant State Highway Engineer

Enc.

bc George M. Baldwin
Tom Edwards
F. B. Klaboe
E. S. Hunter
Walt Hart
Victor D. Wolfe
H. S. Coulter

PMO:dh ja

8905
Bikeway

RECEIVED
NOV 1972
FOR FILING

8c

November 24, 1972
Salem, Oregon

Bicycle Path
I-205 Columbia River Bridge

Mr. Victor D. Wolfe
Location Engineer

BUILDING

We are interested in making another pitch to the FEDS for a bicycle path on the I-205 Columbia River Bridge. Mr. Johnson has been discussing this with the State of Washington, who are also convinced that there should be a bicycle path on the structure. Dick Carroll, District Engineer in Vancouver for the Washington Highway Department, will coordinate the efforts of Washington in accumulating the data necessary for substantiating a new request.

Please have Jim McClure contact him as soon as possible and work closely to the end that a proper and adequate justification in a high class printed form is developed as soon as possible. I stress the urgency as soon as possible because the consultant will soon be at a stage in his design where a firm decision will be necessary, regarding the bicycle path, for him to continue his activities.

E. S. Hunter
Assistant State Highway Engineer

ESH:jf

cc: F. B. Klaboe
A. E. Johnson

3-105
Bike

RECEIVED

FOR

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WASHINGTON, D.C. 20591

OFFICE OF THE ADMINISTRATOR

NOV 13 1972

HNG-22

Honorable Mark O. Hatfield
United States Senate
Washington, D.C. 20510

Dear Senator Hatfield:

This is in reply to your communication of recent date, to the Congressional Liaison Office, accompanied by correspondence from Mrs. Charles Goldsker of West Linn, Oregon, who expressed concern about the provision of a walkway on the bridge over the Columbia River on Interstate Route 205.

The Federal Highway Administration is encouraging the provision of bicycle trails, which is the intended use for the proposed walkway, where an important public need will be served and where conditions are appropriate. However, because of the high cost of providing walkways on the I-205 structure and also because walkways already exist on the I-5 structure a short distance away, we feel that the benefits received would not justify such a large expenditure of Federal-aid funds.

If we can be of any further assistance in this matter, please feel free to contact us.

A similar reply has been sent to Senator Bob Packwood and Representative Wendell Wyatt.

Sincerely yours,

R. R. Bartelsmeyer
Acting Federal Highway Administrator

Enclosure:
Transmitted Correspondence

RECEIVED
STATE HWY ENGR
NOV 29 '72
REFER TO
FOR

18542 Trillium Way
West Linn, Ore. 97068
October 13th 1972

Dear Senator Mark Hatfield,

Could you please look into the decision of the Federal Highway Administration in deciding not to include a walk-way across the I-205 over the Columbia River. They already goofed between Oregon City and West Linn. I hate to see them continue to not co-operate in working on the air pollution problem! There was an editorial in The Oregonian - Oct 12th also expressing concern over this decision.

Please help us with this problem!

Thank you -

Mrs. Charles Gildaker
Chairman W. L. [illegible] Bike

OCT 17 1972

[illegible]
10/31/72

8965.

Bikeway

RECEIVED
OCT 1[illegible] 1972

FOR FILING

8 11

October 16, 1972

Mr. Dick Carroll
Regional Engineer
Washington Department of Highways
4200 Main Street
Vancouver, Washington 98663

Dear Mr. Carroll:

Re: Interstate 205 Bridge Sidewalk

In response to your interest in the proposed incorporation of a bicycle/pedestrian facility on the I-205 Columbia River Bridge, I wish to inform you of the recent negative decision made by the Federal Highway Administration.

Recently, the Oregon State Highway Division instructed the consulting engineering firm who is designing the bridge to make a special study to determine the feasibility and additional costs involved to incorporate a bicycle/pedestrian facility. This was initiated due to many requests and the renewed interest in cycling. Upon completion of the study a submittal was made to the Federal Highway Administration for financing with Federal-aid interstate funds. The following answer was received from their Washington office in May:

> "Due to the remote location of this crossing of the Columbia River, the only feasible use of the additional path is for recreational purposes. The minimum benefits received for the excessive costs required make the proposed addition unacceptable for financing with Federal-aid interstate funds."

After this initial request was denied, the Highway Division, convinced that a facility of this type would be of great benefit to the public, submitted a subsequent study further justifying the cost. This study included long-range bikeway plans from Multnomah and Clark Counties, Port of Portland development plans, and various correspondence supporting the need for this facility.

After receiving and reviewing the second submittal, the Federal Highway Administration stated that insufficient additional information was submitted to warrant reconsideration of their May 22 denial. Following is a quote from that reply:

> "While there is substantial evidence of on-going planning for recreational-type footpaths and bikeways on the Columbia River south shore and other areas in Portland, there is no specific data to support the $3,800,000 expenditure to extend these facilities across the river. Access is already provided through the Interstate Bridge on I-5 where two separate sidewalks are in place. This bridge is also more favorably located for bicycle commuter use because of its location to the high-employment areas of the city."

Very truly yours,

E. S. Hunter
Assistant State Highway Engineer

JDM:jp if

bc: Tom Edwards
F. B. Klaboe
Victor D. Wolfe

9105
Bikeway

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FOR FILING

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STATE HWY ENGR
OCT 12 '72
REFER TO
FOR
Info | Inves | R/D | D/R | Sign | Act | File

**OREGON STATE
HIGHWAY DIVISION**

HIGHWAY BUILDING • SALEM, OREGON • 97310

October 12, 1972

F. B. Klaboe

Mr. Ray Bane, P.E.
Assistant Vice President
Sverdrup & Parcel and Associates, Inc.
P. O. Box 369
Bellevue, WA 98004

Dear Mr. Bane:

Columbia River Bridge, I-205
Bridge No. 9555

This will confirm the telephone conversation with Mr. Allen of your office on Monday, October 9, on the subject of the pathway on the I-205 bridge. The Federal Highway Administration has denied our latest request to include the pathway with financing by federal-aid funds. Based on this action, no further consideration is to be given to the pathway. The design of this structure should proceed without provisions for such a facility.

I have discussed with our legal counsel the possibility of proceeding with the test pile and load test program. They will be contacting counsel for the Port of Portland to determine if it is prudent to proceed with this exploratory work. I will keep you advised on these developments.

We would appreciate receiving a plan and elevation drawing of the structure with your best estimate of footing elevations shown thereon as soon as such a drawing is available.

Very truly yours,

George M. Baldwin
Administrator of Highways
By ORIGINAL SIGNED
WALTER J. HART
Walter J. Hart
Bridge Engineer

WJH:dh

cc F. B. Klaboe
A. E. Johnson
H. S. Coulter
H. A. Schell

8905

Bikeway

FOR FILING

9

October 4, 1972

Mr. G. H. Andrews, Director
Washington State Highway Commission
Highway Administration Building
Olympia, Washington 98504

624

Dear Mr. Andrews:

I-205 Columbia River Bridge
Bridge 9555
Pedestrian-Bikeway Study

We have a reply from the Division Office of the Federal highway Administration on our latest request for a bikeway on the Columbia River I-205 Bridge. It is the opinion of the local office and concurred with by the Regional and Washington offices of the Federal Highway Administration, that the $3.8 million cost of the proposed bikeway is excessive. Therefore, they have declined our request to include the pathway for financing with federal-aid interstate funds.

Based on this action, design on this structure will proceed without any provision for such a facility. Enclosed is a copy of the Federal Highway Administration's letter of October 3, 1972, denying the bikeway request.

Also enclosed are three copies of the March 20, 1972 supplemental study for the proposed pedestrian-bicycle path as prepared by Sverdrup & Parcel and Associates, Inc., which Mr. Foster requested. I am sorry that copies of this report were not furnished to you earlier.

Very truly yours,

George M. Baldwin
Administrator of Highways

By

A. E. Johnson
Assistant State Highway Engineer

Enclosures
cc Richard L. Carroll (w/enc)
George M. Baldwin (w/enc)
F. B. Klaboe "
E. S. Hunter "
Walt Hart

WJH:dh ajw

Form FHWA-121 (12-67)
UNITED STATES GOVERNMENT

# *Memorandum*

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
Box 300
Salem OR 97308

TO : Mr. George M. Baldwin, Administrator of Highways
Salem, Oregon
Attn: Mr. A. E. Johnson, Asst State Highway Engr

DATE: October 3, 1972

In reply refer to: 10-35.6

FROM : G. L. Green, Acting Division Engineer
Salem, Oregon

SUBJECT: Oregon Project I-205-7(2)302
Columbia River Bridge Bike Path

Mr. Johnson's August 11 letter requested reconsideration of the proposed bikeway across the Columbia River Bridge. Accompanying his submission were correspondence and maps from Clark County, the Port of Portland, Citizen's Advisory Committee of Multnomah County, Oregon State Highway Division memorandums, and the consultant's June 2 cost estimate.

We have reviewed this submittal and do not find sufficient information to warrant reconsideration of our May 22 decision that the excessive cost makes the proposed addition unacceptable for financing with Federal-aid Interstate funds. While there is substantial evidence of ongoing planning for recreational-type footpaths and bikeways along the Columbia River south shore and other areas in Portland, there is no specific data to support the $3,800,000 expenditure to extend these facilities across the river. Access is already provided through the Interstate Bridge on I-5 where two separated sidewalks are in place. This bridge is also more favorably located for bicycle commuter use because of its location to the high-employment areas of the city.

This new submittal has been discussed with both our Regional and Washington offices.

BUY U.S. SAVINGS BONDS REGULARLY ON THE PAYROLL SAVINGS PLAN

WASHINGTON STATE
HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS

Highway Administration Building
Olympia, Washington 98504 (206) 753-6000

Daniel J. Evans - Governor
G.H. Andrews - Director

September 28, 1972

Mr. A. E. Johnson
Assistant State Highway Engineer
Oregon State Highway Division
Highway Building
Salem, Oregon 97310

I-205 Columbia River Bridge
Bridge 9555
Pedestrian-Bikeway Study

Dear Mr. Johnson:

Thank you for the copy of your letter to the consultant dated September 11 acknowledging completion of the feasibility study for a bikeway on the above subject structure.

Because of the obvious interest of many people in our state we would be pleased to receive a copy of the consultant's feasibility study, together with information in regard to your Division's position in this matter, if either or both are available to us at this time.

Very truly yours,

G. H. ANDREWS
Director of Highways

By: W. M. FOSTER
Assistant Director for
Highway Development

GHA:fmd
WMF

cc: R. L. Carroll

NOTED
W. J. HART

RECEIVED
OCT 2 1972
OFFICE OF
A. E. JOHNSON
ASSISTANT STATE HIGHWAY ENGINEER

RECEIVED
OCT 3 1972
BRIDGE DIVISION

John N. Rupp Chairman Seattle · Harold Walsh Everett · Baker Ferguson Walla Walla · A.H. Parker Bremerton · Lorna Ream Spokane · Lorenz Goetz secretary

8405
Bi[illegible]

8

Form FHWA-121 (12-67)
UNITED STATES GOVERNMENT

OCT 9 - 1972

# *Memorandum*

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
Box 300
Salem OR 97308

TO : Mr. George M. Baldwin, Administrator of Highways
Salem, Oregon
Attn: Mr. A. E. Johnson, Asst State Highway Engr

DATE: October 3, 1972

In reply refer to: 10-35.6

FROM : G. L. Green, Acting Division Engineer
Salem, Oregon

Original Signed By
G. L. GREEN
Acting Division Engineer

NOTED
A. E. JOHNSON

SUBJECT: Oregon Project I-205-7(2)302
Columbia River Bridge Bike Path

Mr. Johnson's August 11 letter requested reconsideration of the proposed bikeway across the Columbia River Bridge. Accompanying his submission were correspondence and maps from Clark County, the Port of Portland, Citizen's Advisory Committee of Multnomah County, Oregon State Highway Division memorandums, and the consultant's June 2 cost estimate.

NOTED
F. B. KLABOE

We have reviewed this submittal and do not find sufficient information to warrant reconsideration of our May 22 decision that the excessive cost makes the proposed addition unacceptable for financing with Federal-aid Interstate funds. While there is substantial evidence of ongoing planning for recreational-type footpaths and bikeways along the Columbia River south shore and other areas in Portland, there is no specific data to support the $3,800,000 expenditure to extend these facilities across the river. Access is already provided through the Interstate Bridge on I-5 where two separated sidewalks are in place. This bridge is also more favorably located for bicycle commuter use because of its location to the high-employment areas of the city.

This new submittal has been discussed with both our Regional and Washington offices.

Cy. Bridge
10-6-72

10-4-72
Johnson
cc/ Young

cc Hunter

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STATE HWY ENGR
OCT 4 '72
REFER TO
FBK
FOR
Info | R/D | DIR | Act

cc McClure

BUY U.S. SAVINGS BONDS REGULARLY ON THE PAYROLL SAVINGS PLAN

8905
Bike

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SEP 11 1972

FOR FILING

Jr

September 11, 1972

Sverdrup and Parcel
and Associates, Inc.
P. O. Box 369
Bellevue, Washington 98004

bc George M. Baldwin
Tom Edwards
F. B. Klaboe
E. S. Hunter
L. H. Young
V. E. Skoog
V. D. Wolfe
H. S. Coulter

Attention Mr. Ray Bane, P.E.
Asst. Vice President

Gentlemen:

I-205 Columbia River Bridge
Bridge 9555
Pedestrian-Bikeway Study

Under the terms of the letter agreement dated March 29, 1972, you have provided a pedestrian-bikeway feasibility study for the subject bridge. The study was received and considered to be an excellent analysis of the various bikeway alternatives for the structure.

You will be notified as soon as it has been decided whether or not to provide for a bikeway in the final design. If required, a supplemental agreement will be necessary to compensate you for the added design costs.

Meanwhile, you may bill us separately for the feasibility study in accordance with the three items shown in the letter amendment. It is necessary to keep the costs separate from those in the original agreement because of different Federal funding.

Very truly yours,

George M. Baldwin
Administrator of Highways

(Bridge) ja

By

A. E. Johnson
Assistant State Highway Engineer

cc Mr. Glen L. Green
Federal Highway Administration

Mr. W. M. Foster
Washington State
Highway Department

RECEIVED

FOR FILING

8905
Bikeway

August 11, 1972

TO Mr. Glen L. Green
Acting Division Engineer
Federal Highway Administration

FROM A. E. Johnson
Assistant State Highway Engineer

SUBJECT Bicycle Path
Columbia River Bridge, I-205
Bridge No. 9555

The initial request for approval of a pedestrian-bike path on the I-205 bridge was denied due to excessive cost relative to benefits. Subsequent to that denial, additional investigation has been made of justification of the need for such a facility. Based on the results of that investigation, your reconsideration of the proposed bikeway is requested.

I am enclosing copies of correspondence from various planning boards in the Portland metropolitan area who are involved with bikeway development. Implementation of the bikeway plans proposed by these agencies would leave the Columbia River as a barrier between the Oregon and Washington shores. We believe that a definite need is established for such a facility on the structure.

Of the four alternate bikeway locations proposed on the structure, we consider that only the two providing service at the deck level are acceptable. We concur with the recommendation of Sverdrup and Parcel that the location of the pedestrian-bikeway on the west side of the structure at roadway level is the most desirable on a useage standpoint. A compromise location in the median area between the structures can be provided at a lesser cost. This location, while functional, will not be as

(more)

desirable in use. A copy of the cost breakdown for the several bikeway locations is attached.

Over the past several years there has been a spiraling growth in the use of bicycles as a means of transportation and recreation. Oregon has been a leader in recognizing this trend and providing adequate facilities. The I-205 crossing offers perhaps the last opportunity in the Portland area to provide bike access betweeen the two states. It would seem shortsighted not to take advantage of the opportunity provided by the proposed bridge.

We therefore request your reconsideration and approval of the bike path on the structure. The edge-mounted path should be considered as desirable, with the center-mounted path acceptable only based on the cost aspect.

Enc.

bc George M. Baldwin
Tom Edwards
F. B. Klaboe
E. S. Hunter
Walt Hart
L. H. Young
V. E. Skoog
V. D. Wolfe
H. S. Coulter

RJW:dh ja

(REV. 10-69)

**OREGON STATE HIGHWAY DIVISION**

INTER-DEPARTMENT CORRESPONDENCE

Salem, Oregon
August 7, 1972

SUBJECT: Long-range Bike Routes
Pedestrian-Bicycle Path Study
Columbia River (I-205) Bridge

To: Mr. Walter J. Hart
Bridge Engineer
Building

In response to information concerning long-range plans for connecting the proposed pedestrian and bicycle path on either end of the subject structure, the following information and maps have been obtained to further justify this bridge as a total transportation facility.

Multnomah County. A committee has recently been formed to study possible bike routes and formulate a master plan for east Multnomah County. Attached is a plan indicating routes that are presently under study by the committee. Northeast Marine Drive is considered a high priority route for the group. Marine Drive, with only minor implementation problems, presently has the natural potential for a bike route. One of the routes chosen to access the Marine Drive route is along the I-205 Freeway from the Parkrose area and includes the bridge crossing to Washington.

Multnomah County Planning Commission is presently developing a land use plan for the Columbia River South Shore which includes the Columbia Slough area. Their plans envision bike routes and footpaths along the slough as do the plans of the Citizens' Committee. The status of these plans is in the public hearing stage. No maps are available at this time.

Port of Portland has developed a tentative plan for parks and recreational areas along the Columbia River South Shore consistent with the Port's proposed expansion. Their plans include bicycle facilities along N.E. Marine Drive serving the area from Union Avenue on the west to

Sandy River on the east, and footpaths and bicycle trails adjacent to the Columbia Slough. Attached is a copy of the Columbia South Shore Study, North Portland Peninsula Area Plan and a letter supporting the proposed pedestrian-bicycle facility on the bridge.

Clark County, Washington. The Regional Planning Council of Clark County, working with City and County personnel, has published a questionnaire to determine the desires of the public for bicycle access to Oregon. Eight-five percent of the respondents indicated a desire for bicycle access to Oregon via the I-205 Bridge. The questionnaire also indicated a desired route along the Columbia River (Evergreen Highway) between Vancouver and Camas. Attached are copies of letters in support of the facility from the Regional Planning Council.

CRAG. Attached are two plans of proposed bikeways within the Columbia Region Association of Governments' area of planning along with a land use map for parks and open space. These plans support the ideas and concepts of the other plans.

Highway Division Long-range Plan indicates the development of a bike route along the N.E. Portland Highway extending to the Columbia River Gorge, and a proposed route along the I-205 Freeway from Maywood Park to N.E. Marine Drive. A bicycle route along I-205 accessing the proposed routes along Marine Drive, Columbia Slough and the Parkrose area will serve as a joint commuter and recreational facility. The pedestrian-bicycle facility on the bridge would further support this joint usage concept and the proposed route along Marine Drive.

Victor D. Wolfe
Location Engineer

By

James D. McClure
Office Locating Engineer

JDM:jp
Attach
cc: E.S. Hunter

SVERDRUP & PARCEL AND ASSOCIATES, Inc.
*Consulting Engineers*
505 - 106TH AVENUE N. E.
P. O. BOX 369
BELLEVUE, WASHINGTON 98004

June 2, 1972

Oregon State Highway Division
Highway Building
Salem, Oregon 97310

Attention: Mr. Walter J. Hart
Bridge Engineer

Gentlemen:

Subject: I-205 Columbia River Bridge
Bridge 9555

As requested in your May 4, 1972, letter, we enclose comparative cost estimates for alternative pedestrian-bicycle path locations. The alternative locations are shown on Figure 2 and Figure 3 of our Supplemental Studies dated March 20, 1972.

The estimates are order-of-magnitude costs based on 1971 unit prices. They are subdivided into substructure and superstructure costs in Washington and Oregon, plus an item to cover engineering costs and contingencies. Engineering cost will, of course, vary among the alternatives but will also depend upon the degree of completion of the established design concept at the time an alternative path location is adopted.

A roadway level path completely contained on one of the dual structures is recommended for its safety, accessibility from the roadway, view from the bridge, minimal maintenance, and because it detracts the least from the bridge's appearance.

Very truly yours,

SVERDRUP & PARCEL AND ASSOCIATES, Inc.

R. Jack Allen

R. Jack Allen, P. E.
Project Engineer

RECEIVED
JUN 20 1972
LOCATION
SECTION

RECEIVED
JUN 16 1972
OFFICE OF
STATE HIGHWAY ENGINEER

RECEIVED
JUN 5 1972
BRIDGE DIVISION

Enclosures

cc: H. Scott Coulter

### Pedestrian-Bicycle Path
### Columbia River Bridge No. 9555
### Comparative Cost Estimates

| Scheme | Centerline Deck-Mounted Path<br>Integral with Structure (2a) | Centerline Deck-Mounted Path<br>Precast Slab Between Structures (3c) | Below-Deck Path (2c or 2d) | Edge-Mounted Path (2b) |
|---|---|---|---|---|
| Washington | | | | |
| Substructure | $ 320,000 | $ 194,000 | $ 238,000 | $ 379,000 |
| Superstructure | 599,000 | 477,000 | 510,000 | 614,000 |
| Oregon | | | | |
| Substructure | 750,000 | 345,000 | 430,000 | 830,000 |
| Superstructure | 1,255,000 | 920,000 | 984,000 | 1,347,000 |
| Contingencies & Engineering (20%) | 586,000 | 374,000 | 428,000 | 630,000 |
| Total | $3,510,000 | $2,310,000 | $2,590,000 | $3,800,000 |
| % of Construction Cost | 5.4 | 3.5 | 3.9 | 5.8 |

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JUN 5 1972
BRIDGE DIVISION

SVERDRUP & PARCEL AND ASSOCIATES, Inc.
*Consulting Engineers*
505 - 106TH AVENUE N. E.
P. O. BOX 369
BELLEVUE, WASHINGTON 98004

April 13, 1972

Oregon State Highway Division
Highway Building
Salem, Oregon 97310

Attention: Mr. Walter J. Hart
Bridge Engineer

Gentlemen:

Subject: I-205 Columbia River Bridge
Bridge 9555

Your letter of April 4, 1972, requested our comments on the merits of placing two five-foot pedestrian-bicycle paths symmetrically about the centerline of the Columbia River Bridge.

Structurally the box girder could be widened five to six feet without the addition of a vertical web although it would be a marginal case. The cantilever slab length would be about 8' 0"± and the spacing of the four webs would be approximately 20'± center to center. This would increase slab thickness slightly when compared with the established concept.

However, we believe that a five-foot wide pedestrian-bicycle path is too narrow for a two-way facility. If one-way movement of pedestrians and cyclists could be enforced then two five-foot wide paths, one on each side of the structure, would be acceptable.

It is doubtful that this one-way movement of pedestrians and cyclists could be maintained and enforced. The length of the paths would be about 6,500'± and the gradient, sloping upward continually from south to north is at a rate of 2.9%± for most of its length. Some pedestrians and cyclists, particularly the sightseers, would want a return trip over the path by which they came in order to avoid a round trip of 2-1/2 to 3 miles.

RECEIVED
APR 14 1972
BRIDGE DIVISION

On this basis it is our recommendation, that if two paths are considered necessary, they should be two-way facilities of eight-foot minimum width.

It would be well to consider that although one pedestrian-bicycle path makes the total bridge unsymmetrical, each of the dual structures remain symmetrical within themselves with the exception of the barriers.

In order to compare the schemes under consideration, one eight-foot wide path, two five-foot wide paths, and two eight-foot wide paths, an estimate of their additional construction costs are as follows:

| Scheme | Estimated Additional Construction Cost |
|---|---|
| 1 - 8' path | $3,170,000 |
| 2 - 5' paths | $4,020,000 |
| 2 - 8' paths | $5,990,000 |

These estimated additional construction costs do not include any contingencies but do reflect unit costs which would be less for the symmetrical structures than for the single eight-foot path.

We hope these comments will assist you in your evaluation of alternative path locations.

Very truly yours,

SVERDRUP & PARCEL AND ASSOCIATES, Inc.

R. Jack Allen

R. Jack Allen, P. E.
Project Engineer

cc: H. Scott Coulter

RECEIVED
APR 14 1972
BRIDGE DIVISION

SVERDRUP & PARCEL AND ASSOCIATES, Inc.
*Consulting Engineers*
505 - 106TH AVENUE N. E.
P. O. BOX 369
BELLEVUE, WASHINGTON 98004

March 20, 1972

Oregon State Highway Division
Highway Building
Salem, Oregon 97310

Attention: Mr. Walter J. Hart
Bridge Engineer

Gentlemen:

Subject: I-205 Columbia River Bridge
Bridge 9555

In accordance with your request in letter dated February 8, 1972, we submit under separate cover twenty-five copies of our report entitled, "Supplemental Studies for a Pedestrian-Bicycle Path on the Proposed Interstate Route I-205 Columbia River Bridge". The report presents the results of our studies for the best location on the bridge for an eight-foot wide path giving prime consideration to the safety of bicyclists, pedestrians and motorists.

A location at roadway level on the west side of the bridge, with a structural ramp on the Washington shore and an at-grade ramp on the Oregon shore, is recommended for the path. The estimated additional cost of the path at this location, including engineering and contingencies, is $3,800,000.00.

Very truly yours,

SVERDRUP & PARCEL AND ASSOCIATES, Inc.

R. D. Bane

R. D. Bane, P. E.
Assistant Vice President

Enclosures

cc: H. Scott Coulter (w/encl.)

RECEIVED
MAR 21 1972
BRIDGE DIVISION

8905
Bikeway

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FOR FILING

**OREGON STATE**
**HIGHWAY DIVISION**

HIGHWAY BUILDING • SALEM, OREGON • 97310

July 5, 1972

The Honorable Richard L. Smythe
Washington State Representative
5204 Du Bois Drive
Vancouver, Washington 98661

Dear Mr. Smythe:

This is in reply to your letter of June 23 requesting information on bikeways in Oregon and the current status of the bicycle-pedestrian facility on the I-205 Columbia River Bridge.

Mr. Powell has put a great deal of work and effort into the bicycle program for Clark County, including the circulation of a questionnaire, in his efforts to satisfy the needs and desires of the public.

Enclosed are several copies of our manual. Please bear in mind that it was very hastily put together without background experience, but we feel it does serve as a guide.

I recently prepared a paper entitled "Standards and Guidelines for Oregon" for a presentation coming up in Portland. This paper relates to our present program and a copy is attached.

NOTED
E. S. HUNTER
Baldwin info.

Regarding the I-205 Bridge, our consultant engineers, Sverdrup and Parcel, have completed preliminary studies to incorporate a bicycle-pedestrian facility on the structure. This study has been forwarded to the Federal Highway Administration. Before they will make a decision on this matter they require additional data as well as long-range plans for connecting the facility to proposed bike facilities on both the Oregon and Washington shores. I am presently compiling a report including proposed plans of Multnomah County, Clark County, the Port of Portland and CRAG for justification of the bike facility on the I-205 Bridge.

Noted
Gary L. Ros

I trust this information will be of some value to you--we are all going through the learning process in the development of bicycle trails. I am also enclosing a list of addresses of other governmental agencies you may wish to contact for information. This

Recd
7-10-72

list was recently furnished me through the League of American Wheelmen and I have not as yet contacted any of these agencies.

Very truly yours,

Victor D. Wolfe
Location Engineer

By

J. D. McClure
Office Locating Engineer

Enclosures

JDM:mc

bc E. S. Hunter (w/att) ✓
Victor D. Wolfe

RICHARD L. SMYTHE
FORTY-NINTH DISTRICT
5204 DU BOIS DR.
VANCOUVER 98661
BUS. TEL.: 693-9920
RES. TEL.: 693-1633

FORTY-SECOND LEGISLATURE
1971-72

COMMITTEES

CHAIRMAN: LOCAL GOVERNMENT
EDUCATION AND LIBRARIES
ELECTIONS AND APPORTIONMENT

**House of Representatives**
STATE OF WASHINGTON
OLYMPIA

June 23, 1972

Mr. Jim McClure
Bicycle Trail Planning
Oregon Highway Department
Salem, Oregon

Dear Jim:

Jerry Powell, one of our Clark County Regional Planners has informed me that you have collected considerable data and programs relative to bicycle trails. He was greatly impressed by a presentation you recently made as well as the wealth of knowledge and information you've developed.

As a legislator, I am dedicated to the goal of bicycle trails state-wide and inter-state in scope. Locally, I am making every effort to see that Clark County leads the way in Washington State. From what Jerry tells me, I can use all the information you can share with me that will help our local efforts, as well as prepare me for work at the state level and specifically with our Department of Highways.

Any expression of opinion from your Highway Department, including plans you have for incorporating "trails" into the 1-205 Bridge, will be greatly appreciated. I know I'm asking a great deal but we are in dire need of all that you can share with us. Thank you in advance.

Sincerely yours,

Dick

Richard L. Smythe

cc: Carolyn McCall, Chairman
Bicycle Advocates

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JUN 26 1972
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8905
Bikeway

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FOR FILING

**OREGON STATE
HIGHWAY DIVISION**

HIGHWAY BUILDING • SALEM, OREGON • 97310

June 15, 1972

Sverdrup & Parcel & Associates, Inc.
P. O. Box 369
Bellevue, Washington 98004

Attention Mr. Ray Bane, P.E.
Assistant Vice President

Gentlemen:

I-205 Columbia River Bridge
Bridge 9555
Pedestrian-Bikeway Study

The Federal Highway Administration has approved the supplemental letter agreement, dated March 29, 1972, for preparation of the pedestrian-bikeway feasibility study on the subject bridge. By letter dated April 7, 1972, the Federal Highway Administration approved the supplemental agreement and acknowledged that verbal authorization to proceed with the study had been given on February 8, 1972.

Please excuse our delay in forwarding this information to you.

Very truly yours,

**NOTED**
**A. E. JOHNSON**

George M. Baldwin
Administrator of Highways
By
ORIGINAL SIGNED
WALTER J. HART
Walter J. Hart
Bridge Engineer

RJW:dh

cc A. E. Johnson

RECEIVED
JUN 16 1972
OFFICE OF
STATE HIGHWAY ENGINEER

7905
- Bikeway

9

RECEIVED
JUN 19 1972
FOR FILING

**OREGON STATE
HIGHWAY DIVISION**

HIGHWAY BUILDING • SALEM, OREGON • 97310

June 15, 1972

Mr. R. O. Archer, Chairman
Regional Planning Council of Clark County
2400 "T" Street
Vancouver, Washington 98661

Dear Mr. Archer:

Thank you for your letter of May 23 supporting the need for a bicycle and pedestrian way on the new Interstate 205 Bridge. I, too, believe this type of facility will provide the opportunity to link recreational areas on both sides of the river to the bicycle as a growing means of transportation.

We have recently submitted to the Federal Highway Administration a study incorporating an 8-foot path on the bridge, prepared by Suerdrup & Parcel, consultant engineers on the project. In support of this facility additional information has been requested by the Federal Highway Administration on long-range planned bicycle routes on the Oregon and Washington shores of the river.

Your letter will help further justify this major expenditure, as we are now developing this information for the Federal Highway Administration, and would appreciate a preliminary copy of Clark County's plans for bicycle routes at your earliest convenience.

Very truly yours,

George M. Baldwin
Administrator of Highways

NOTED
E. S. HUNTER

By

Victor D. Wolfe
Location Engineer

RECEIVED
JUN 16 1972
OFFICE OF
STATE HIGHWAY ENGINEER

JDM:mc

bc E. S. Hunter
J. D. McClure

**REGIONAL PLANNING COUNCIL OF CLARK COUNTY**

2400 "T" STREET VANCOUVER, WASHINGTON 98661
PHONE 1 206 695-3361

**TOM JENKINSON**
PLANNING DIRECTOR

May 23, 1972

Mr. George Baldwin, Administrator
Oregon State Highway Department
Salem, Oregon

Dear Mr. Baldwin:

Over the last few years there has been a rebirth in people's interest in bicycles and bicycle uses. This has led to increased concern about the provision of bicycle ways as well as pedestrian walkways throughout the urban and rural areas of the County. In the case of Clark County a group of Bicycle Advocates has encouraged the County and City of Vancouver to develop a bikeways plan. At the present time the Regional Planning office's technical staff is in the process of completing this plan.

In this connection a major transportation facility, I-205 and the I-205 bridge is in the preliminary design evaluation stages. The bridge will provide an opportunity to link Washington and Oregon recreation areas for the use of cyclists and pedestrians. We are most anxious that the design of this bridge include adequate provisions for bikes and pedestrians so that these modes of travel can move easily and safely between Oregon and Washington. The Regional Planning Council of Clark County would therefore encourage the Highway Commission to give every consideration for the inclusion of these other means of traffic movements.

Yours truly,

R. O. Archer
Chairman of Regional Planning Council

ROA:TJ:sb
cc: Mr. William Albright

RECEIVED
MAY 24 1972
OFFICE OF
STATE HIGHWAY ENGINEER

Noted
Gary L. Ross

■ CLARK COUNTY ■ CITY OF VANCOUVER ■ CLARK COUNTY PUBLIC UTILITY DISTRICT ■ VANCOUVER SCHOOL DISTRICT ■ EVERGREEN SCHOOL DISTRICT ■ CENTRAL LABOR COUNCIL ■ VANCOUVER CHAMBER OF COMMERCE ■ CITY OF RIDGEFIELD ■ CLARK COUNTY SEWER DISTRICT NO. 2 ■ CITY OF LA CENTER ■ CITY OF BATTLEGROUND ■ VANCOUVER HOUSING AUTHORITY ■ CITY OF CAMAS ■ CITY OF WASHOUGAL ■ PORT OF VANCOUVER ■ CLARK SKAMANIA SOIL & WATER CONSERVATION DISTRICT

7905

WASHINGTON STATE
Bikeway
HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS

Highway Administration Building
Olympia, Washington 98504 (206) 753-6000

Daniel J. Evans - Governor
G. H. Andrews - Director

RECEIVED

May 25, 1972

Mr. R. D. Archer, Chairman
Regional Planning Council of
Clark County
2400 T Street
Vancouver, Washington 98661

Dear Mr. Archer:

Director Andrews has asked that I respond to your letter of May 23 urging that the bridge across the Columbia River be planned in such a fashion as to provide for a facility for the use of cyclists and pedestrians.

As you know, both the State of Oregon and the State of Washington now have legislation which provides for bicycle facilities under certain conditions. To this end the Consultant who is designing the Columbia River Bridge was asked by the State of Oregon, with concurrence by the State of Washington, to study the feasibility of providing for such service. We, like you, have noticed the substantial increase and interest on the part of many of our citizens in the bicycle and bicycle uses. If it is feasible and within economic reason, we will be interested in providing the service. At this point the results of the Consultant's study are not available to our department and, as a result, we cannot comment directly on your question.

One element of this matter, however, appears to be something you can help us with. The legislation here in the State of Washington provides that one of the criteria for establishing bicycle trails on state highways is that it be a part of a Master Plan for trails and bikeways as established by the local governing authority. If such a plan is available in Clark County, our District Engineer, Mr. Carroll, should certainly be made aware of it. If it is not complete, we would urge your increased attention since we believe that in order for bike trails on state highways to be effective they must not be disjointed segments, but fit into an overall established plan.

The last sentence of your letter encourages the Commission to give every consideration for the inclusion of such a facility. In closing, let me say that you have our commitment to do so. We, like you, are aware of the substantial public interest which has been rekindled in recent years and wish to be of service.

Very truly yours,

W. M. Foster

W. M. FOSTER
Assistant Director for
Highway Development

NOTED
F. B. K.

WMF:fmd

cc: F. B. Klaboe, Oregon State Highway Div. ✓
R. L. Carroll
G. H. Andrews
J. Butts

RECEIVED
MAY 30 1972
OFFICE OF
STATE HIGHWAY ENGINEER

Baker Ferguson Chairman Walla Walla · Harold Walsh Everett · John N Rupp Seattle · Lorna Ream Spokane · A. H. Parker

**REGIONAL PLANNING COUNCIL OF CLARK COUNTY**

2400 "T" STREET    VANCOUVER, WASHINGTON 98661
PHONE 1 206 695-3361

**TOM JENKINSON**
PLANNING DIRECTOR

May 23, 1972

Mr. George Andrews, Director
Washington State Highway Department
Highway Building
Olympia, Washington

Dear Mr. Andrews:

Over the last few years there has been a rebirth in people's interest in bicycles and bicycle uses. This has led to increased concern about the provision of bicycle ways as well as pedestrian walkways throughout the urban and rural areas of the County. In the case of Clark County a group of Bicycle Advocates has encouraged the County and City of Vancouver to develop a bikeways plan. At the present time the Regional Planning office's technical staff is in the process of completing this plan.

In this connection a major transportation facility, I-205 and the I-205 bridge is in the preliminary design evaluation stages. The bridge will provide an opportunity to link Washington and Oregon recreation areas for the use of cyclists and pedestrians. We are most anxious that the design of this bridge include adequate provisions for bikes and pedestrians so that these modes of travel can move easily and safely between Oregon and Washington. The Regional Planning Council of Clark County would therefore encourage the Highway Commission to give every consideration for the inclusion of these other means of traffic movements.

Yours truly,

R. O. Archer
Chairman of Regional Planning Council

ROA:TJ:sb
cc: Mr. Richard Carroll
Mr. John Girven

■ CLARK COUNTY ■ CITY OF VANCOUVER ■ CLARK COUNTY PUBLIC UTILITY DISTRICT ■ VANCOUVER SCHOOL DISTRICT
■ EVERGREEN SCHOOL DISTRICT ■ CENTRAL LABOR COUNCIL ■ VANCOUVER CHAMBER OF COMMERCE ■ CITY OF RIDGEFIELD
■ CITY OF BATTLEGROUND ■ VANCOUVER HOUSING AUTHORITY ■ CLARK COUNTY SEWER DISTRICT NO. 2 ■ CITY OF LA CENTER
■ CLARK SKAMANIA SOIL & WATER CONSERVATION DISTRICT ■ CITY OF CAMAS ■ CITY OF WASHOUGAL ■ PORT OF VANCOUVER

8905
Bikeway

RECEIVED
MAY 25 1972
FOR FILE

Form FHWA-121 (12-6
UNITED STATES GOVERNMENT

# *Memorandum*

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
Box 300
Salem OR 97308

TO : Mr. George M. Baldwin, Administrator of Highways
Salem, Oregon
Attention: Tom Edwards

DATE: May 22, 1972

In reply refer to: 10-35.6

FROM : R. E. Simpson, Division Engineer
Salem, Oregon

SUBJECT: Oregon Project I-205, Columbia River Bridge
Pedestrian-Bicycle Path Study

We have received an answer from our Washington office on your request (March 29) for a bicycle path across the Columbia River - I-205 bridge. Quoted below is their reply:

"Division Engineer Simpson's memorandum to Mr. Baldwin dated April 12, 1972, requested information concerning long range plans for connecting the pedestrian and bicycle path on either end of the structure. Due to the remote location of this crossing of the Columbia River the only conceivable use of the additional path is for recreational purposes. The minimum benefits received for the excessive costs required make the proposed addition unacceptable for financing with Federal-aid Interstate funds."

5-24-72

NOTED
TOM EDWARDS

Hunter - Johnson

RECEIVED
MAY 23 1972
OFFICE OF
STATE HIGHWAY ENGINEER

NOTED
E. S. HUNTER

" Young
Hall
Aulick
Coulter

BUY U.S. SAVINGS BONDS REGULARLY ON THE PAYROLL SAVINGS PLAN

8905
Bikeway

F 4

RECEIVED
MAY 11 1972
FOR FILING

**OREGON STATE
HIGHWAY DIVISION**

HIGHWAY BUILDING • SALEM, OREGON • 97310

May 4, 1972

Sverdrup & Parcel & Associates, Inc.
P. O. Box 369
Bellevue, WA 98004

Attention Mr. R. Jack Allen

Gentlemen:

**NOTED
A. E. JOHNSON**

Proposed Pedestrian-Bicycle Path
Columbia River-I-205 Bridge
Bridge 9555

The Federal Highway Administration has indicated a continuing interest in the proposed pedestrian-bicycle path on the Columbia River - I-205 Bridge. They have requested some additional items of information. They would like a break-down of comparison costs for the different alternates shown in figures two and three of your March 20, 1972, report. This cost break-down should include design engineering costs.

The Federal Highway Administration has indicated some specific interest in Proposal Figure 3C. They believe that incorporating the pathway under the system proposed in 3C could be accomplished with a minimum change in the existing sections and very little increase in engineering costs. They also questioned whether a light-weight material had been considered for the slab.

Will you please review the above questions and give me your comments.

In addition to the above items the Federal Highway Administration has requested information on the long-range plans for connecting the pedestrian-bike path to bike paths on the Oregon and Washington shores. Our Metropolitan Engineer's office is looking into this subject and will be supplying whatever data is available.

Very truly yours,

George M. Baldwin
Administrator of Highways
By ORIGINAL SIGNED
WALTER J. HART
Walter J. Hart
Bridge Engineer

RECEIVED
MAY 5 1972
OFFICE OF
STATE HIGHWAY ENGINEER

WJH:DH
cc A. E. Johnson
H. S. Coulter

8905

RECEIVED
APR 20 1972
FOR FILING

**OREGON STATE**
**HIGHWAY DIVISION**
1859
Metropolitan Section
5821 NE Glisan Portland, Oregon 97213 Phone 229-6971

April 18, 1972

Mrs. Carolyn McCall
Chairman, Bicycle Advocates
7016 Ohio Drive
Vancouver, Washington 98664

Dear Mrs. McCall:

In reference to your letter of April 16, the study of a bicycle and pedestrian path is still underway by our consulting firm, Sverdrup, Parcel & Associates, Inc., who have analized the approximate cost for several alternate bicycle/pedestrian walkways on the Columbia River Bridge for I-205. These studies include alternate locations of a walkway as well as investigation of the utilization of a single or double walk - the double being designed for one-way traffic in each direction. A decision as to the justification for expenditure of the amount of road user funds for this walkway has not been made at this point. So far our request to the Consulting Firm has merely been to investigate the possibility of incorporating a walkway into the Bridge design and the approximate cost thereto.

If the decision is made for this bicycle/pedestrian walkway, then the Firm will be requested to include this in their design. We could expect that this decision would be forthcoming within the next few months.

Very truly yours,

ORIGINAL SIGNED BY H. S. COULTER

H. S. COULTER
Metropolitan Engineer

NOTED
F. B. KLABOE

HSC:cw
Bcc: F. B. Klaboe
Walter Hart
Victor Wolfe

RECEIVED
APR 19 1972
OFFICE OF
STATE HIGHWAY ENGINEER

8905
Bikeway

WASHINGTON STATE
HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS
Highway Administration Building
Olympia, Washington 98504 (206) 753-8000

Daniel J. Evans - Governor
G.H. Andrews - Director

RECEIVED
APR 1[illegible] 1972

April 13, 1972

Mr. A. E. Johnson
Assistant State Highway Engineer
Oregon State Highway Division
Highway Building
Salem, Oregon 97310

I-205 Columbia River Bridge
Bridge No. 9555
Pedestrian-Bikeway SR 205

Dear Mr. Johnson:

This is to acknowledge your letter of March 17 requesting our concurrence in the addition of a feasibility study to the present agreement with Sverdrup and Parcel for the design of the above referenced structure. This feasibility study is to develop the logic for the provision of a pedestrian-bikeway on this facility.

With apologies for such a tardy reply, this letter is to indicate the concurrence of this department in the addition of this work to the present agreement.

Very truly yours,

G. H. ANDREWS
Director of Highways

W. M. Foster

By: W. M. FOSTER
Assistant Director for
Highway Development

4/17/72

bc to Walt Hart - Please send
copy to FHWA.

GHA:fmd
WMF

cc: W. A. Bulley
R. L. Carroll
J. H. Cooper

RECEIVED
APR 17 1972
OFFICE OF
STATE HIGHWAY ENGINEER

**NOTED**
**A. E. JOHNSON**

Baker Ferguson Chairman
Walla Walla

Harold Walsh
Everett

John N. Rupp
Seattle

Lorna Ream
Spokane

A.H. Parker
Bremerton

Lorenz Goetz
Secretary

RECEIVED
MAR 20 1972

FOR FILING

March 17, 1972

Mr. W. M. Foster
Assistant Director of
Highway Development
Washington State Department of Highways
Highways-Licenses Building
Olympia, Washington 98501

Dear Mr. Foster:

I-205 Columbia River Bridge
Bridge No. 9555
Pedestrian-Bikeway

You have received various correspondence relating to the construction of a pedestrian-bikeway on the subject project. The attached copy of a letter to the Federal Highway Administration indicates the present progress by the consultant on a feasibility study for the pedestrian-bikeway.

This feasibility study is considered necessary because of the current emphasis on bicycling.

Your approval, indicated by your signature below, will add this study and the actual pedestrian-bikeway, if constructed, to our agreement dated October 21, 1969, which covers the I-205 bridge project. Financing of this work will be in accord with said agreement.

You will be furnished a copy of the feasibility study when it becomes available.

Very truly yours,

George M. Baldwin
Administrator of Highways

By ORIGINAL SIGNED BY
A. E. JOHNSON
ja

A. E. Johnson
Assistant State Highway Engineer

bc/enc. G. M. Baldwin
Tom Edwards
F. B. Klaboe
Walt Hart
H. S. Coulter

RJW:dh/ja
Attachment

APPROVED:

______________________________

March 17, 1972

Mr. R. E. Simpson
Division Engineer
Federal Highway Administration
Box 300
Salem, OR 97308

Dear Sir:

I-205 Columbia River Bridge
Bridge No. 9555
Your File 08-35-ED

The State's consultant for the subject project, Sverdrup & Parcel & Associates, Inc., has been instructed to make a feasibility study for a pedestrian-bikeway on the subject bridge. Tentative Federal Highway Administration approval to proceed with this study was received from Mr. H. A. Schell, Jr., on February 8, 1972.

Under the terms of the agreement with the consultant relative to "Changes in Work", adjustment shall be made in the compensation due the consultant as mutually agreed upon. I have indicated to the consultant by letter that payment for this study will be based on his invoice. A supplemental letter agreement is in process and will be forwarded for review and approval soon.

A preliminary estimate of the design costs of the feasibility study is approximately $6,000 and a rough estimate of the construction cost is $3 million. The best location on the structure for the pedestrian-bikeway will be determined from the feasibility study. A more accurate estimate of construction cost is dependent upon the alternate finally chosen.

You will be furnished preliminary plans of the proposed pedestrian-bikeway as soon as they are available.

Very truly yours,

George M. Baldwin
Administrator of Highways

By ORIGINAL SIGNED BY
A. E. JOHNSON ja

A. E. Johnson
Assistant State Highway Engineer

cc Mr. W. M. Foster
Washington Department
of Highways

Mr. R. Jack Allen
Sverdrup & Parcel
& Associates, Inc.

bc George M. Baldwin
Tom Edwards
F. B. Klaboe
V. E. Skoog
W. J. Hart
L. H. Young
H. S. Coulter

RJW:dh ja

8905

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Highway

FOR FILING

Form FHWA-121 (1 7)
UNITED STAT GOVERNMENT

# Memorandum

9

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
Box 300
Salem OR 97308

TO : Mr. George M. Baldwin, Administrator of Highways
Salem, Oregon

DATE: April 12, 1972

In reply refer to: 10-35.6

FROM : R. E. Simpson, Division Engineer
Salem, Oregon

SUBJECT: Oregon Project I-205 Columbia River Bridge
Pedestrian and Bicycle Access

533

We have reviewed the consultant's "Supplemental Studies for a Pedestrian-Bicycle Path on the Proposed Interstate Route I-205 Columbia River Bridge" and find this proposal interesting but in need of more information. We would like a breakdown of comparative cost for the different alternates in Figures 2 and 3. Without this information it is difficult to evaluate the extremely high cost of the recommended proposal. Please show the costs for design engineering.

It would appear to us that the proposal shown in Figure 3(c) could be accomplished with very little change in the existing section and very little increase in engineering costs. Have other lighter materials been considered for the slab?

We also would like to get the long range plan for connecting up the pedestrian and bicycle path on either end of the structure. Do the counties or cities have such a plan? If they do what is its current status and could you obtain a preliminary copy for this submission?

Please furnish us this information so that a complete review can be expedited.

RECEIVED
APR 13 1972
OFFICE OF
STATE HIGHWAY ENGINEER

4-14-72
Johnson
pls. handle

7.18.72
Hunter is
handling
File

BUY U.S. SAVINGS BONDS REGULARLY ON THE PAYROLL SAVINGS PLAN

8905 Bikeway

**OREGON STATE**
**HIGHWAY DIVISION**

~~HIGHWAY BUILDING~~ • SALEM, OREGON • 97310

March 29, 1972

Mr. R. E. Simpson
Division Engineer
Federal Highway Administration
P. O. Box 300
Salem, Oregon 97308

Dear Sir:

Supplemental Study
Pedestrian-Bicycle Path
Columbia River Bridge, I-205

On February 8, 1972, the consulting engineers for the subject structure, Sverdrup & Parcel & Associates, Inc., were requested to study the feasibility of carrying an eight-foot wide pedestrian-bicycle path on the structure. Enclosed are six copies of their supplemental study of this facility.

As indicated in the report, their recommendation is that the eight-foot wide pathway should be provided on the outside of the structure at the deck level. Their cost estimate of adding the path to the structure is $3,800,000. This includes a 20 percent allowance for engineering and contingencies. The additional cost to the consultant due to having to design an unsymmetrical structure is included in this 20 percent allowance.

This supplemental study is being sent to you for your review and approval. The consultant is presently engaged in the final design of the structure and, therefore, needs an early answer on this matter.

Very truly yours,

George M. Baldwin
Administrator of Highways
By ORIGINAL SIGNED
WALTER J. HART
Walter J. Hart
Bridge Engineer

**NOTED**
**A. E. JOHNSON**

RECEIVED
MAR 30 1972
OFFICE OF
STATE HIGHWAY ENGINEER

WJH:dh
Enclosures
cc A. E. Johnson
H. S. Coulter /w/ 1 copy of report
R. Jack Allen, Sverdrup & Parcel

8905
Bikeway

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FOR FILING

SVERDRUP & PARCEL AND ASSOCIATES, Inc.

March 20, 1972

cy [illegible] 3-21-72
(cy - 3-27-72 Draft to FHWA for approval)

regon State Highway Division
ighway Building
alem, Oregon 97310

Attention: Mr. A. E. Johnson
Assistant State Highway Engineer

NOTED
A. E. JOHNSON

Gentlemen:

Subject: I-205 Columbia River Bridge
Bridge 9555
Engineering Proposal
Pedestrian-Bicycle Path Location Study

Pursuant to our correspondence and conversations regarding the subject study, we submit this proposal for engineering services. The services cover a study and report of the best location for an eight-foot wide pedestrian-bicycle path on the I-205 Columbia River Bridge. The study will include cost estimates, and prime consideration will be given to the safety of bicyclists, pedestrians, and motorists.

As compensation for the services described above, we propose that payment be made on a cost reimbursable basis plus a fixed fee. Costs will be computed by multiplying our productive payroll costs by a factor of 1.95 to include salary-related and general overhead costs. Out of pocket (direct costs) expenses are also reimbursable. To the reimbursable costs, a fixed fee of $800.00 shall be added. We estimate that the total costs to you for the proposed services will not exceed $7,000.00.

It is anticipated that the study will be completed and the report submitted to you prior to March 31, 1972.

Very truly yours,

SVERDRUP & PARCEL AND ASSOCIATES, Inc.

R. D. Bane, P. E.
Assistant Vice President

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Bikeway
FOR FILING

9

**OREGON STATE HIGHWAY DIVISION**
INTER-DEPARTMENT CORRESPONDENCE

Salem, Oregon
March 13, 1972

**SUBJECT:** I-205 Columbia River Bridge
Bridge 9555

**To:**

Memo to the Files

On March 10, 1972, I had a telephone conversation with R. Jack Allen, Project Engineer, for the subject project. Progress on the proposed pedestrian-bikeway was discussed as follows:

1. The design cost of the feasibility study will be approximately $5,000. Additional work on the study that might be recommended by the various agencies involved could bring this total to $6,000.

2. It has not been determined as yet if an extension of time will be required to complete the bridge design because of the work done on the feasibility study.

3. A very rough estimate of the construction cost is $3 million. The best location of the pedestrian-bikeway on the structure has not been determined as yet. Once the best alternate has been chosen, a more accurate construction cost can be determined.

4. It has not been determined yet if the time extension will be required for the final design of the pedestrian-bikeway. It was indicated that the sooner a decision is made to go ahead with the final design of the pedestrian-bikeway the less time will be required to complete all aspects of the structure final design.

On March 10, 1972, I discussed with Herb Schell of the Federal Highway Administration the question of tentative Federal Highway Administration approval to proceed with the pedestrian-bikeway study. Mr. Schell said that he had discussed this proposal with Messrs. Klaboe, Porter and Hart and that the February 8, 1972, letter from Mr. Hart to Sverdrup & Parcel requesting that they proceed with the study could be used as a date for tentative approval by the Federal Highway Administration.

**NOTED**
**A. E. JOHNSON**

R. J. Wright
Bridge Office Engineer

RECEIVED
MAR 15 1972
OFFICE OF
STATE HIGHWAY ENGINEER

RJW:dh
cc L. L. Wallace
J. H. Wood

8905

RECEIVED
MAR 23 1972

Bikeway
FOR FILING

**OREGON STATE HIGHWAY DIVISION**

INTER-DEPARTMENT CORRESPONDENCE

Portland, Oregon
March 9, 1972

**SUBJECT:** Pedestrian/Bicycle Walkway
Interstate Bridge - I-5

F. B. Klaboe
Deputy Highway Engineer
Salem

I am forwarding a sketch map showing two possible alternates for connection of a walkway to the existing sidewalk on the east side of the Interstate Bridge over the Columbia River. As you are aware, there has been a continued effort by various parties requesting the reopening of the sidewalk for use by pedestrians and bicyclists. Even though there has not been a large increase in the pedestrian-bicycle usage of the west walkway, it appears to this office that it might be a prudent bit of work for us to yield to the request of these individuals - "put on the white hat" and permit usage of this sidewalk by those desiring to do so.

Of the two plans depicted, this office recommends Plan A which would provide a connection to the existing sidewalk which could then connect to both the Safeway shopping center on the east side of the freeway, as well as the tunnel under the freeway which connects to the new shopping center being constructed at Jantzen Beach. Since the existing walks are narrow on the Interstate Bridge, having a joint walkway open would reduce in particular any conflict between the pedestrian and bicyclist travelling in opposite directions.

I spoke with Mr. R. L. Carroll, District Engineer for the Washington Department of Highways, who advised that the opening of this east walkway would not present any problem to the State of Washington.

If you concur in our recommendation, we could attempt to get federal participation for the current Jantzen Beach Interchange Landscaping contract even though the FHWA may not wish to participate in the work. An appropriate time to do so is while the current contract is underway so the landscaping and seeding would be done up to the new sidewalk and would not have to be disturbed by construction of this walkway at a later date.

H. S. Coulter

H. S. COULTER
Metropolitan Engineer

3-22-72

HSC:cw
Attachments

cc: Victor D. Wolfe

RECEIVED
MAR 13 1972
OFFICE OF
STATE HIGHWAY ENGINEER

8905

RECEIVED
MAR 7 - 1972
FOR FILING

Bikeway

March 6, 1972

R. D. Bane, P.E.
Assistant Vice President
Sverdrup & Parcel
and Associates, Inc.
P. O. Box 369
Bellevue, Washington 98004

Dear Mr. Bane:

Re: I-205 Columbia River Bridge
Bridge 9555

This will acknowledge your letter of February 24 regarding billing for the pedestrian-bikeway study requested by me.

Consideration of extra payment for this work will be given upon receipt of the invoice.

Very truly yours,

George M. Baldwin
Administrator of Highways

by

A. E. Johnson
Assistant State Highway Engineer

AEJ:ja

bc George M. Baldwin
Tom Edwards (enc.)
F. B. Klaboe "
Walt Hart "

SVERDRUP & PARCEL AND ASSOCIATES, Inc.
*Consulting Engineers*
505 - 106TH AVENUE N. E.
P. O. BOX 369
BELLEVUE, WASHINGTON 98004

February 24, 1972

Oregon State Highway Division
Highway Building
Salem, Oregon 97310

Attention: Mr. A. E. Johnson
Assistant State Highway Engineer

Gentlemen:

Subject: I-205 Columbia River Bridge
Bridge 9555

As noted in our letter dated February 11, 1972, we are proceeding with the study which you requested for a pedestrian-bikeway on the subject bridge. Because of the uncertainty involved in estimating the time required for review of the study, we are unable to determine whether or not an extension of time will be required to complete the bridge design.

We consider the pedestrian-bikeway study to be outside the scope of our Agreement dated September 30, 1970, however, and are therefore maintaining a separate accounting of costs for the study. At the conclusion of the study we will forward the accounting for your consideration of extra payment.

Very truly yours,

SVERDRUP & PARCEL AND ASSOCIATES, Inc.

R. D. Bane

R. D. Bane, P. E.
Assistant Vice President

NOTED
A. E. JOHNSON

RECEIVED
FEB 25 1972
OFFICE OF
STATE HIGHWAY ENGINEER

SVERDRUP & PARCEL AND ASSOCIATES, Inc.

February 11, 1972

Oregon State Highway Division
Highway Building
Salem, Oregon 97310

Attention: Mr. Walter J. Hart
Bridge Engineer

Gentlemen:

Subject: I-205 Columbia River Bridge
Bridge 9555

Receipt is acknowledged of your letter dated February 8, 1972, which approved printing of standard detail sheets, transmitted your review of our proposed railing configuration, and requested a study of the best location for an eight-foot pathway on the bridge.

As suggested in your letter, a rail overhang of the slab is not required to maintain a smooth line on the bridge. It is our intent to cast the outside five or six inches of "slab" as part of the rail in order to protect the anchorage of the slab prestressing. This will conceal any discontinuity in the slab profile.

In accordance with your request, we are proceeding with a study of the best location for an eight-foot pathway on the bridge. Mr. Carroll of the Washington Department of Highways has informed us that although no comprehensive plan has been adopted by local government agencies, it is likely that the pathway will connect to Evergreen Highway.

Very truly yours,

SVERDRUP & PARCEL AND ASSOCIATES, Inc.

R. Jack Allen

R. Jack Allen, P. E.
Project Engineer

cc: H. Scott Coulter
Richard Carroll

NOTED
L. WALLACE

RECEIVED
FEB 14 1972
BRIDGE DIVISION

8905
B:K

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MAR 7 - 1972
FOR FILING

METROPOLITAN ENGINEER
RECEIVED
MAR 8 - 1972
☐ ME ☐ AME ☐ AME ☐ MOE ☐ MDE ☐ MTE

STATE OF WASHINGTON
DANIEL J. EVANS, GOVERNOR

WASHINGTON
STATE HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS
OFFICE OF DISTRICT ENGINEER
4200 MAIN STREET
VANCOUVER, WASHINGTON 98663

1 March 1972

NOTED
F. B. KLABOE

COPY

Mrs. Mary F. Hansen
P.O. Box 386
Vancouver, Wa. 98660

C.S. 0607R SR 205 L-4007
I-205 Bridge Crossing

Dear Mrs. Hansen:

You are correct in your thinking that the Washington and Oregon Highway Departments have requested design and cost data for providing a pedestrian-bicyclist pathway on the 205 bridge. The consulting engineering firm who is handling this work is developing the data and will furnish us with information as it is generated.

Very preliminary estimates indicate that we are probably talking in the neighborhood of one to two million dollars as a cost of this facility. At some point in time there will have to be a judgment call made as to whether or not this is a valid facility as we try to compare need and use to cost. I certainly agree with you that bicycling is healthy recreation, but I think that we, not only within the Highway Department but local government and the community itself, must carefully weigh the expenditure of public funds so that we are satisfied that we are securing maximum benefits on the expenditure.

Very truly yours,

R. L. CARROLL, P.E.
District Engineer

RLC:bar
cc: Mr. H. Scott Coulter
Records Control

cc U.D. Wolfe
F.B. Klaboe

RECEIVED
MAR 6 1972
OFFICE OF
STATE HIGHWAY ENGINEER

8905

RECEIVED
MAY 11 1972
FOR FILING

Copy to:
Edwards
Shaw

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF OUTDOOR RECREATION
PACIFIC NORTHWEST REGION
1000 SECOND AVENUE
SEATTLE, WASHINGTON 98104

IN REPLY REFER TO:
D42

FEB 7 1972

Noted —
GEORGE M. BALDWIN

Mrs. Carolyn McCall
Chairman, Bicycle Advocates
7016 Ohio Drive
Vancouver, Washington 98664

Dear Mrs. McCall:

Thank you for your letter of January 12, which transmitted a copy of your January 7 letter to the Oregon District Highway Engineer respecting your concern for the inclusion of bicycle and pedestrian facilities on the I-205 bridge. Current Federal Highway Administration procedures require that a design public hearing must be held for this project, assuming a corridor public hearing has previously been held. This would be one opportunity to assure that your views respecting the design of the bridge become an official matter of record to which the Oregon State Highway Department would then respond in seeking design approval by the Federal Highway Administration.

Under the National Environmental Policy Act,an environmental impact statement would probably have to be prepared for this project. Assuming this is done, it would initially be prepared in draft form and circulated to interested agencies and individuals for comment before it becomes final. This would be another opportunity for you to express your views which would become a matter of record and would be included in the final impact statement along with the highway departments' response to your comments.

We assume that no publicly owned land in a public park, recreation area, waterfowl or wildlife refuge or any land in an historic site is involved so that the provisions of Section 4(f) Public Law 90-495, the Federal Aid Highway Act of 1968, would not apply. These provisions call for the preservation of these areas. If there is no feasible and prudent alternative to the use of these lands for a federally financed transportation project, all possible planning to minimize harm must be included in the plans for the transportation project. Generally, such planning takes the form of mitigation by provision of new recreation facilities to replace land or facilities lost because of the project.

Under Section 10 of the 1899 Rivers and Harbors Act, a permit must be approved by the U. S. Coast Guard for any bridge crossing of navigable water. Recent court decisions have indicated that the decision to grant such a permit must consider a wide range of environmental factors. You could contact the Coast Guard to learn the status of the permit.

Generally, this Bureau encourages inclusion of bicycle and pedestrian facilities in association with transportation routes. We are not, at this time, in a position to judge the merits of this particular proposal.

Sincerely yours,

Maurice H. Lundy
Regional Director

cc:
~~State~~ Highway Engineer,
State Oregon Highway Division

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FEB 9 1972
OFFICE OF
STATE HIGHWAY ENGINEER

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FOR FI

OFFICE OF THE ADMINISTRATOR

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WASHINGTON, D.C. 20591

FEB 1 1972

EN-10

Mrs. Carolyn McCall
Chairman
Bicycle Advocates
7016 Ohio Drive
Vancouver, Washington 98664

Dear Mrs. McCall:

Your January 12, 1972, letter to Secretary Volpe, with enclosures has been referred to this office for reply. You expressed your interest in pedestrian and bike paths on the proposed I-205 bridge across the Columbia River between Vancouver, Washington, and Portland, Oregon.

Although the Federal Government is providing approximately 90 percent of the cost of building the Interstate System, it is the State's responsibility to plan, design, and undertake the actual construction of the routes. In this capacity, therefore, it is the State highway department's responsibility to propose such design alternatives as providing a pedestrian-bike path across an Interstate bridge. The Federal role is one of approval or disapproval of the State's plans at each stage.

We have been informed that the Oregon Highway Division is presently studying the feasibility of carrying a path on the proposed Interstate Route 205 structure across the Columbia River. Depending on the results of that study, the Oregon highway officials may or may not request Federal approval of the path. We note that you have appropriately informed those officials of your views and interest in the path.

Please be assured that should the State find such a path to be feasible and in the public interest, we will give any proposals they may advance our prompt attention.

Thank you for writing.

Sincerely yours,

for M. F. Maloney
F. C. Turner
Federal Highway Administrator

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FEB 3 1972
OFFICE OF
STATE HIGHWAY ENGINEER

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U.S. [illegible] TRANSPORTATION
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[illegible]
EXECUTIVE SECRETARIAT

January 12, 1[illegible]2
7016 Ohio Drive
Vancouver, Wash.
98664

Mr. John A. Volpe
Secretary
Dept. of Transportation
R. 10200
400 7th Street SW
Washington, D.C. 19801

Dear Mr. Volpe:

We are a citizens group in Clark County, Washington concerned with bicycle trails: Bicycle Advocates. Our county is in process of having a comprehensive bicycle trail plan designed by the Regional Planning Council. We feel it is important for our trails to link with Oregon. We were very concerned to learn that the design now being done for the I-205 bridge between Vancouver and Portland does not include any way for bicyclists or pedestrians to cross! We have read the recent article about bicycles and the need for safe means of transportation in the U.S. News and World Report of Dec. 6, 1971. From this we also read your remarks and feel you would like to know of our local concern since it is an interstate matter.

We urge you to look into this matter and at least have an alternate design including bicycle and pedestrian facilities that could be compared with the one now being designed to determine the additional costs, problems, and benefits. We feel there is wide popular interest on both sides of the river.

Sincerely,

Carolyn McCall
Carolyn McCall (Mrs.)
Bicycle Advocates, Chairman

5 enclosures

7016 Ohio Drive
Vancouver, Washington
98664
January 7,1972

Mr. Scott Colter
Metropolitan District Engineer
Department of Highways
5821 N.E. Glisan
Portland, Oregon

Dear Mr. Colter:

On Dec. 10, a group of Clark County citizens with a strong concern for safe and attractive bicycle routes for transportation and recreation met to form an organization, Bicycle Advocates. Our goal is a countywide bicycle trail system that links with Washington and Oregon.

House Bill 1060 of the 1971 Washington legislature allows trails in highway rights-of-way if they are part of a comprehensive plan of public agencies. We have met with the Vancouver City Council and the Clark County Commissioners. We requested that they approve a bicycle trail comprehensive plan in principle and that they request the Regional Planning Council to prepare it. Both groups approved it in principle and the County Commissioners sent the request to the planning body.

There is no question that bicycle sales are increasing. An article in U.S. News and World Report Dec. 6, 1971 indicated that an estimated 8.5 million bicycles would be sold in 1971 compared with 3.7 million in 1960. There are about 80 million bicycle riders at present, which is twice the amount of 10 years ago. In Vancouver, one bicycle shop estimates it will sell 600 bicycles in 1972 and another that it will sell 2,000 ten speed bikes. Accident rates have also increased. There is a need to provide safe places to ride for recreation and transportation.

Our purpose in writing is to express our concern that the design of the I-205 does not include any way for pedestrians and bicyclists to cross! We feel strongly that such a facility should be included. As you probably know, the Port of Portland plans a recreational area along the Columbia which includes bicycle trails. The Regional Planning staff in Clark County has been working on plans for a bicycle trail on the Washington side which was proposed by the Federal Lewis and Clark Commission. There should be direct access between these trails. By allowing only motorized traffic on the bridge there would be a larger car parking problem near trails on each side. The concern is wider than a special bicycle interest: for motorists there is no way to leave the bridge on foot in case of malfunction of a car or an accident. I personally would not like to stand by a stalled car, sit inside, or try to walk on the edge of the bridge. Therefore, we strongly urge you to include a bicycle and pedestrian path in your design of the I-205 bridge.

The article in U.S. News and World Report mentioned that the States have been notified by the Department of Transportation that bicycle trails on federally aided highway projects can be built with money from the Highway Trust Fund. The Federal government would pay 90% and the State 10%. This would help provide the additional funds.

At present, there is no safe way for bicyclists from Washington to get to the greater Portland Metropolitan Area. We feel that one walkway on the I-5 bridge for two way bicycle and pedestrian traffic is unrealistic and inadequate for peak use periods in the future. We therefore request that the upstream walkway be reopened and that safe passage be provided from the end of the bridge on the Oregon side into Portland and to recreational areas along the Columbia River.

Sincerely,

Carolyn E. McCall

Carolyn E. McCall (Mrs.)
Bicycle Advocates Chairman

4 enclosures:
1. Washington House Bill 1060
2. "Bike Boom: A Way Out For Commuters?" U.S. News and World Report, [illegible]
3. "820 Bicycle Riders Killed, 38,000 Injured Last Year," Camas-Washougal Post-Record—Shoppers' Guide, Wednesday, November 17, 1971
4. "Case for the upstream walkway," Columbian, Nov. 17,1971

cc. Mr. Tom Edwards
Gov. Dan Evans
Mr. Richard Carroll
Mr. George H. Andrews
Mr. George D. Zahn
Sen. Al Henry
Sen. Frank Foley
Rep. Al Bauer
Rep. Dan Marsh
Rep. Dick Smythe
Rep. Hal Zimmerman
Rep. Duane L. Brentson
Director, Bureau of Outdoor Recreation
Mr. Ralph M. Phillips
Mr. John Volpe
Rep. Julia Butler Hansen
Sen. Henry Jackson
Sen. Warren Magnuson

# CHAPTER 130

## [House Bill No. 1060]

## HIGHWAYS--

## CREATION, PRESERVATION, REESTABLISHMENT OF RECREATIONAL TRAILS AND PATHS

AN ACT Relating to public highways; and creating new sections.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF WASHINGTON:

NEW SECTION. Section 1. (1) No limited access highway shall be constructed that will result in the severance or destruction of an existing recreational trail of substantial usage for pedestrians, equestrians or bicyclists unless an alternative recreational trail, satisfactory to the authority having jurisdiction over the trail being severed or destroyed, either exists or is reestablished at the time the limited access highway is constructed. If a proposed limited access highway will sever a planned recreational trail which is part of a comprehensive plan for trails adopted by a state or local governmental authority, and no alternative route for the planned trail exists which is satisfactory to the authority which adopted the comprehensive plan for trails, the state or local agency proposing to construct the limited access highway shall design the facility and acquire sufficient right of way to accommodate future construction of the portion of the trail which will properly lie within the highway right of way. Thereafter when such trail is developed and constructed by the authority having jurisdiction over the trail, the state or local agency which constructed the limited access highway shall develop and construct the portion of such trail lying within the right of way of the limited access highway.

(2) Where a highway other than a limited access highway crosses a recreational trail of substantial usage for pedestrians, equestrians, or bicyclists, signing sufficient to insure safety shall be provided.

(3) Where the construction or reconstruction of a highway other than a limited access highway would destroy the usefulness of an existing recreational trail of substantial usage for pedestrians, equestrians, or bicyclists or of a planned recreational trail for pedestrians, equestrians, or bicyclists incorporated into the comprehensive plans for trails of the state or any of its political subdivisions, replacement land, space, or facilities shall be

provided and where such recreational trails exist at the time of taking, reconstruction of said recreational trails shall be undertaken.

NEW SECTION. Sec. 2. Facilities for pedestrians, equestrians, or bicyclists shall be incorporated into the design of highways and freeways along corridors where such facilities do not exist upon a finding that such facilities would be of joint use and conform to the comprehensive plans of public agencies for th development of such facilities, will not duplicate existing o proposed routes, and that safety to both motorists and pedestrians, equestrians, and bicyclists would be enhanced by t segregation of traffic.

In planning and design of all highways, every effort shall made consistent with safety to promote joint usage of rights of w for trails and paths in accordance with the comprehensive plans public agencies.

Passed the House May 3, 1971.
Passed the Senate April 30, 1971.
Approved by the Governor May 18, 1971.
Filed in Office of Secretary of State May 20, 1971.

8905

RECEIVED

FOR FILING

Salem, Oregon
January 20, 1972

Pedestrian-Bike Ways

Mr. George M. Baldwin
Administrator

1 When the Willamette River Bridge at Oregon City on I-205 was designed, it was apparently our decision not to include sidewalks on this structure. This decision was shared by the Federal Highway Administration, since at that time they were somewhat reluctant to approve funds for such sidewalks on Interstate Highways. Recently, a cost estimate was made for the addition of a pedestrian-bike way on the outer side of the structure which indicated an expenditure of about $450,000.

[illegible]

At the time the Interstate Bridge was included into the Interstate System, there were existing sidewalks which were accepted. Our proposed design for the new Oregon Slough Bridge just south of the Interstate Bridge contains a provision for an eight-foot pedestrian-bike way on the east side of the structure which will be separated from traffic by a GM-type rail and a chain-link-type screen. The perpetuation of this sidewalk was requested by Multnomah County and received approval from the Federal Highway Administration based on separation from traffic as described above.

[illegible]

The Fremont structure on I-405 was designed without sidewalks, which I believe was an in-house decision backed by the Federal Highway Administration. It would appear that a bridge of this length and height should not be designed for pedestrian or bicycle traffic in view of the many bridges crossing the Willamette at lower levels.

[illegible]

The proposed crossing of the Columbia River on I-205 does not contain provision for sidewalks or a bike-way. The Federal Highway Administration's Regional Bridge people have indicated a willingness to consider a pedestrian-bike way and it is anticipated that there will be considerable agitation in this State to provide one.

I have been advised by the Vancouver office of the Washington State Department of Highways that they, too, have been contacted by bicycle interests regarding this same bridge. At the present time, the Washington Department of Highways has their Interstate Highways posted for motor vehicles only but I am advised that the enforcement of this has been extremely loose and pertains mostly to hitchhiking.

A. E. Johnson
Assistant State Highway Engineer

AEJ:ja

cc Tom Edwards
F. B. Klaboe
Walt Hart

Noted
GARY L. ROSS

FORM E-30

**OREGON STATE HIGHWAY DIVISION**

INTER-DEPARTMENT CORRESPONDENCE

Salem, Oregon
January 11, 1972

SUBJECT: Pedestrian-Bike Ways

To:

Mr. A. E. Johnson
Assistant State Highyway Engineer

BUILDING

Relative to your request regarding pedestrian-bike ways on certain structures, I have determined the following:

Willamette River Bridge at Oregon City
I-205, Clackamas County

This structure was constructed prior to the time of emphasis on pedestrian-bike ways and during the time when the Federal Highway Administration was not prone to spend federal funds for same. At the time of construction, the Federal Highway Administration would not have authorized funds for a pedestrian-bike way on this structure. Recently, at the request of the Front Office, a cost estimate was made indicating that the addition of a pedestrian-bike way to this structure would require the expenditure of about $450,000. We have received no instructions as to how to proceed in this matter.

Oregon Slough Bridge
Pacific Highway, Multnomah County

Current plans for design of this structure are to include an eight-foot pedestrian-bike way on the east side of the structure. It will be separated from traffic by a GM-type rail and a chain-link-type screen. This would allow for the possibility of a continuous bike way extending from Metropolitan Portland across Oregon Slough and connecting with the existing Interstate Bridge.

Existing Interstate Bridge
Pacific Highway, Multnomah County

At the request of the Washington Highway Division, the west sidewalk on this structure was closed in order to prevent confusion at an interchange at the north end of the Interstate Bridge in Vancouver. As a result of public complaints, Mr. Tom Edwards indicated in the press that the closure would be investigated and perhaps the walk would be reopened.

Proposed Interstate Bridge
I-205, Multnomah County

An estimate for a pedestrian-bike way for this structure indicated a cost of $2 million. This estimate was submitted to Mr. Klaboe and we are awaiting instructions. I contacted Mr. Herb Schell unofficially, and he indicated they have received no official request for consideration of a pedestrian-bike way on this structure. It is his impression that due to the present federal frame of mind regarding pedestrian-bike ways and the low percentage of additional cost, a pedestrian-bike way on this structure could be given favorable consideration.

Incidentally, the Willamette River Bridge in Oregon City, I-205, won an "Excellence" award for the year 1971, which was presented by the American Institute of Steel Construction. The I-5 Undercrossing of Boeckman Road won an "Award of Merit" for the year 1971, also from the American Institute of Steel Construction. These awards will be presented at a stag dinner on January 28, 1972 at Illahe Country Club.

R.W. Ellison
R. W. Ellison
Bridge Administration Engineer

RWE:dh

cc L. L. Wallace

# NOTE

DECEMBER 30, 1971

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Observer, LaGrande------------------------12-18

## ..................Stranded by blizzard......................

I was one of the people caught in the blizzard conditions in Ladd Canyon on December 8 and 9. Along with many others, I was stranded there for approximately 12 hours.

Though we were all uncomfortable, I suppose, and some nearly frozen, there would have been far greater discomfort and probably some fatalities, had it not been for services rendered by some wonderful people in La Grande. The local radio station pretty much kept us informed as to the progress of rescue and encouraged people to stay in their cars and not try to walk into town. The way the wind was blowing and as cold as it was, along with the way most of the people I observed were dressed,I question that a person heading out for town would have made it before he froze to death.

The sheriff's rescue squad, bringing gas to a lot of us who had run out, or who were about to run out of gas, prevented many from freezing and their admonition of how to protect oneself from carbon monoxide fumes was helpful. The efforts of the State Police and the State Highway Department who finally successfully broke through to where we were stranded (there seemed to have been as many as 100 vehicles stranded there) took considerable ingenuity and no small amount of courage to venture out in such a place where wind gust were reaching as high as 70 miles an hour, creating a blinding ground blizzard and temperatures that dipped as low as 5 degrees in the canyon.

Then there are those wonderful people who opened their homes to the stranded motorists, an last but certainly not least, are those people who gave up a night's sleep to man the ramparts at the armory and loaned sleeping bags and air mattresses so that the overflow would have someplace to get in out of the weather,

While everyone may not write, I hope you will convey to the fine people of La Grande that we are, nevertheless, grateful.

Respectfully yours,
Clair D. Buttars
P.O. Box 4048
Pocatello, Idaho

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The Oregonian, Portland-------------------------- 12-28

INFORMATIONAL
OBJECTIVE 2

## Distances recalculated

## I-5 milepost signs change

SALEM — New mileposts being placed on Interstate 5 in Oregon are bringing a surprise to motorists long familiar with the small green signs which showed the distance to Portland.

The new larger signs are based on the milage from the California border, rather than downtown Portland.

Assistant State Highway Engineer Fred Klaboe said that new federal highway regulations are the reason for the change. Under the federal rules mileage on interstate highways must be measured from the southern border of a state.

The remarking of I-5 will be completed by the first of the year, Klaboe said.

The new signs have a green background with the word "mile" on the top and larger numbers than were used on the previous signs.

Klaboe said 60 years of records, which were tied to the old, signs are also being changed.

The old "equations," a method of computing distances which have been changed because of road realignments, will also be eliminated as a result of the new signs.

Because of the "equations" there has been an 18-mile difference in signs in the area between Canyonville and Myrtle Creek, but this will now be eliminated

Klaboe said there will be no need to change the mile post signs on Interstate 80N because they are presently running in the correct direction.

Cost of making the mile post changes on I-5 is $11,000 with the federal government paying 92 per cent of the cost, Klaboe said.

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East Oregonian---12-20
Pendleton

## Four cars crash into bridge near Spofford

Four cars crashed into a burned bridge early Sunday on a county road near Spofford, northeast of Milton-Freewater.

All the accidents happened with a few minutes of each other at about 3 a.m.

The bridge, located near the Spofford elevator, was destroyed by fire Friday. The fire resulted when employes of rancher Martin Buchanan were burning debris in a creek bed. Fanned by high winds. the flames ignited the bridge.

The first of the crashes involved Joseph Bond Jr., 21, Milton-Freewater. Investigating officers said his car knocked down warning flares, and signs on the bridge approach.

Bond was hospitalized as result of the crash but no other injuries were reported.

The other drivers whose cars piled into the charred bridge included Scott Garton and Allen Renville from the Milton-Freewater area, and Neal Tone, Walla Walla County sheriff's deputy.

The accidents were investigated by state police and the Umatilla County Sheriff's office.

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Capital Journal, Salem-------------------------------------- 12-24

## More road work coming next year

INFORMATIONAL
OBJECTIVE 2

INFORMATIONAL
OBJECTIVE 3

The Oregon Highway Commission awarded construction contracts totaling $134 million during 1971, $19 million more than in 1970, a year-end report said Thursday.

The commission report said another $160 million in contracts will probably be awarded during 1972.

Of the $134 million contracted during 1971, approximately $6,100,000 was for construction on county road systems. An additional $1,400,000 was expended for work on city streets off the state highway system. The balance went for work in connection with federal-aid participating projects and state-financed construction projects.

The report said attendance at Oregon's state parks increased again for the 17th straight year. More than 25,500,000 persons visited the parks, an increase of 6.4 per cent over the previous year.

Contracts will be let next year to complete the six lanes of Interstate 5 between Salem and Portland. The two remaining sections are between Wilsonville and Salem, and between Tigard and Tualatin.

Construction on those two sections will cost $25 million.

The Fremont Bridge over the Willamette River in Portland will be opened early next year, completing the Stadium Freeway.

Other major jobs to be contracted next year include:

**Clackamas County:** Boring Road interchange on Mt. Hood Highway, $1.7 million.

**Clackamas and Multnomah:** East Portland freeway between S.E. Foster Road and Causey Ave., $18.5 million.

**Douglas:** Grading and paving Interstate 5 between Divide and Comstock, $4.5 million; grading and paving Interstate 5 between Garden Valley Road and Fairgrounds interchange, $6 million; grade and pave Winston-Shady section of Coos Bay-Roseburg Highway, $3.7 million.

**Jackson:** Reconstruction of Green Springs Highway in Ashland, $1.5 million.

**Malheur:** Construct bridge over Snake River at Adrian, $1.1 million.

**Marion:** Construction on Hayesville interchange-Battle Creek section of Pacific Highway, $1.4 million; grading and paving Hillsboro-Silverton Highway between Boones Ferry Road and Pacific Highway, $1.2 million.

**Multnomah:** Grade and pave Pacific Highway between Jantzen Beach and Columbia Slough Bridge, $10 million; grade and pave East Portland Freeway between S.E. Bush St. and Foster Road, $10.5 million; grade and pave S.E. 17th and Powell Blvd. on Mt. Hood Highway, $2.7 million; grade and pave Mt. Hood Highway between Ava Ave. and E. Burnside St. in Gresham, $1 million.

**Polk:** Expand Willamina-Salem Highway between Rickreall and Independence Junction to four lanes, $6 million.

**Tillamook:** Grade and pave Oregon Coast Highway between Pleasant Valley and Green Timber Road, $1.3 million.

**Umatilla:** Grade and pave Oregon-Washington Highway between Milton and Washington state line, $3.3 million.

**Union:** Grade and pave Ladd Canyon-North Powder section of Interstate 80N, $9.2 million.

**Washington:** Construct interchange on Sunset Highway at Austin Road, $2.8 million.

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* The Oregonian, Portland-----------------12-28

## Bipeds bypassed

To the Editor: I have recently read in your paper a piece of news which has greatly increased my concern over the policies and priorities of our omnipotent State Highway Department.

I refer to your reporting of the problems with pedestrians and bicycles crossing the West Linn-Oregon City (Freeway 205) Bridge.

The item of course constitutes one more piece of evidence of the single-minded devotion of the State Highway Department to the automobile; and this devotion is continued in total ignorance or disregard of the fact that the only reason for the existence of this contrivance is the movement of people from one place to another. This is the only reason for bridges, highways, streets, lanes, paths, etc.

The West Linn-Oregon City Bridge happens to connect the downtown of one community (West Linn) with the biggest single shopping center of the Oregon City-West Linn-Gladstone area; yet, because it also happens to serve freeway traffic, no provision was made for sidewalks to move people on foot or even on bicycle; the result has been "trespassing" by both pedestrians and bicycles on this man-made link across the Willamette River. ... Interstate Freeway System, there will be no provision for the movement of people across this link on the river, except by automobiles.

Presumably if the bipeds will doggedly again attempt to walk or even use a bicycle, they will again be guilty of breaking the law as laid down by the Oregon State Highway Commission and will be subject to prosecution.

What a difference with the way bridges are planned and built in practically every other city of this whole wide world.

R. J. POLANI,
8311 SW Third Ave.

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The World---------12-17
Coos Bay

## Makes Survey

SALEM (UPI) — The State Highway Division is making a survey to see if it is feasible to establish a continuous hiking trail the full length of the Oregon Coast.

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INFORMATIONAL
→
OBJECTIVE 7

Democrat-H
Albany

## Hearing
## on new

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P.O. Box 4048
Pocatello, Idaho

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regonian, Portland------------------------------- 12-28

INFORMATIONAL
OBJECTIVE 2

## ances recalculated

## milepost signs change

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East Oregonian---12-20
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The accidents were investigated by state police and the Umatilla County Sheriff's office.

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Capital Journal, Salem-------------------------------------- 12-24

## More road work coming next year

INFORMATIONAL
OBJECTIVE 2

INFORMATIONAL
OBJECTIVE 3

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The commission report said another $160 million in contracts will probably be awarded during 1972.

Of the $134 million contracted during 1971, approximately $6,100,000 was for construction on county road systems. An additional $1,400,000 was expended for work on city streets off the state highway system. The balance went for work in connection with federal-aid participating projects and state-financed construction projects.

The report said attendance at Oregon's state parks increased again for the 17th straight year. More than 25,500,000 persons visited the parks, an increase of 6.4 per cent over the previous year.

Contracts will be let next year to complete the six lanes of Interstate 5 between Salem and Portland. The two remaining sections are between Wilsonville and Salem, and between Tigard and Tualatin.

Construction on those two sections will cost $25 million.

The Fremont Bridge over the Willamette River in Portland will be opened early next year, completing the Stadium Freeway.

Other major jobs to be contracted next year include:

**Clackamas County:** Boring Road interchange on Mt. Hood Highway, $1.7 million.

**Clackamas and Multnomah:** East Portland freeway between S.E. Foster Road and Causey Ave., $18.5 million.

**Douglas:** Grading and paving Interstate 5 between Divide and Comstock, $4.5 million; grading and paving Interstate 5 between Garden Valley Road and Fairgrounds interchange, $8 million; grade and pave Winston-Shady section of Coos Bay-Roseburg Highway, $5.7 million.

**Jackson:** Reconstruction of Green Springs Highway in Ashland, $1.5 million.

**Malheur:** Construct bridge over Snake River at Adrian, $1.1 million.

**Marion:** Construction on Hayesville interchange-Battle Creek section of Pacific Highway, $1.4 million; grading and paving Hillsboro-Silverton Highway between Boones Ferry Road and Pacific Highway, $1.2 million.

**Multnomah:** Grade and pave Pacific Highway between Jantzen Beach and Columbia Slough Bridge, $10 million; grade and pave East Portland Freeway between S.E. Bush St. and Foster Road, $10.5 million; grade and pave S.E. 17th and Powell Blvd. on Mt. Hood Highway, $3.7 million; grade and pave Mt. Hood Highway between Ava Ave. and E. Burnside St. in Gresham, $1 million.

**Polk:** Expand Willamina-Salem Highway between Rickreall and Independence Junction to four lanes, $6 million.

**Tillamook:** Grade and pave Oregon Coast Highway between Pleasant Valley and Green Timber Road, $1.3 million.

**Umatilla:** Grade and pave Oregon-Washington Highway between Milton and Washington state line, $3.3 million.

**Union:** Grade and pave Ladd Canyon-North Powder section of Interstate 80N, $9.2 million.

**Washington:** Construct interchange on Sunset Highway at Austin Road, $[illegible] million.

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The Oregonian, Portland-----------------12-28

## Bipeds bypassed

To the Editor: I have recently read in your paper a piece of news which has greatly increased my concern over the policies and priorities of our omnipotent State Highway Department.

I refer to your reporting of the problems with pedestrians and bicycles crossing the West Linn-Oregon City (Freeway 205) Bridge.

The item of course constitutes one more piece of evidence of the single-minded devotion of the State Highway Department to the automobile; and this devotion is continued in total ignorance or disregard of the fact that the only reason for the existence of this contrivance is the movement of people from one place to another. This is the only reason for bridges, highways, streets, lanes, paths, etc.

The West Linn-Oregon City Bridge happens to connect the downtown of one community (West Linn) with the biggest single shopping center of the Oregon City-West Linn-Gladstone area; yet, because it also happens to serve freeway traffic, no provision was made for sidewalks to move people on foot or even on bicycle; the result has been "trespassing" by both pedestrians and bicycles on this man-made link across the Willamette River.

Before too long we are going to have another similar example in existence in the Fremont Bridge of Portland; it will join the populous north and northeast sections of the city with the employment area of the northwest industrial section, yet, because it is part of the Interstate Freeway System, there will be no provision for the movement of people across this link on the river, except by automobiles.

Presumably if the bipeds will doggedly again attempt to walk or even use a bicycle, they will again be guilty of breaking the law as laid down by the Oregon State Highway Commission and will be subject to prosecution.

What a difference with the way bridges are planned and built in practically every other city of this whole wide world.

R. J. POLANI,
8311 SW Third Ave.

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The World--------12-17
Coos Bay

## Makes Survey

SALEM (UPI) — The State Highway Division is making a survey to see if it is feasible to establish a continuous hiking trail the full length of the Oregon Coast.

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INFORMATIONAL
→
OBJECTIVE 7

Democrat-Herald 12-18
Albany

## Hearing set on new span

JEFFERSON — Replacement of Greens Bridge two miles east of here will be subject of a Jan. 20 hearing.

The Oregon Highway Commission has set 8 p.m. that date in the Jefferson City Hall for its formal corridor-design hearing.

The plan to place a new concrete bridge on a new alignment to the south of the present one will be presented. The present steel structure was built in 1912, has narrow travel lanes, a 20-ton load limit and steep approaches which reduce visibility.

Greens Bridge crosses the North Santiam River.

Highway officials say the new span will be approximately 450 feet long, have a 36-foot wide roadway and sidewalk on the upstream side and construction of approximately 1,000 feet of roadway.

The east end will be at approximately the same location as the present structure and angled southward so that the west end is several hundred feet south and eliminates an intersection-curve the west end of the present bridge.

DECEMBER 30, 1971

Register-Guard---12-25
Eugene

## $19 million more

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The commission report said another $160 million in contracts will probably be awarded during 1972.

## Grant for park

WASHINGTON (UPI)—Oregon's State Highway Division has received a federal grant of $55,450 to acquire 51 acres adjoining Champoeg State Park in order to create a scenic buffer zone and nature trials.

Rep. Al Ullman, D-Ore., said the money comes from the Bureau of Outdoor Recreation.

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Oregon Journal, Portland------------------------------------------12-27

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INFORMATIONAL
OBJECTIVE 2

**I-205 BRIDGE** won an Engineering Excellence Award for Moffatt, Nichol & Bonney, Inc., consulting engineers. The 2,700-foot span over Willamette River between Oregon City and West Linn forms major traffic link in Metropolitan Portland. With completion of northern portion of I-205, will be part of north-south interstate highway. Consulting Engineers Council of Oregon, sponsors of competition, gave honorable mention to pollution abatement program engineered by Sandwell International Inc. for Publishers' Paper plant at Newberg.

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Central Oregonian, Prineville-----------12-16

## Services Said In Baker For Albert Tabor

Funeral services were conducted Dec. 10 in Baker for Albert C. Tabor, 73, who died Dec. 6 in Prineville.

Tabor was born May 22, 1898 at Granite. He was a veteran of World War I; he served four years in the navy. In 1921 he married Veta Flety; she preceded him in death. Tabor was an employee of the Oregon State Highway Department for approximately 40 years. He resided in Richland from 1942 until 1969.

He is survived by sons Albert W. Tabor, Prineville, and Richard Tabor, Burns; daughters, Mrs. Lorna Deitz, Clearwater, Fla., and Mrs. Lucille Humphry, Sea Brook, Tex.; brother James Tabor, Grangeville, Ida.; sisters, Theresa Fowler, Baker, and Mrs. Mena Norris, Wallace, Ida.; nine grandchildren and three great-grandchildren.

Burial took place at the Mt. Hope Cemetery, Baker. Local arrangements were made by the Prineville Funeral Home.

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INFORMATIONAL
OBJECTIVE

Democrat-Herald 12-18
Albany

## Money goes to museum

BROWNSVILLE — Two museums here, both under the administration of the Linn County Historical Society, have received a grant from the Oregon Highway Commission.

The money — $1,323 — goes for upkeep of the Linn County Historical Museum and the Moyer House. The money is given in a lump sum by the state and the grant does not specify how much each of the two museums will receive.

The grant comes each year to counties which support local

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Oregon Statesman 12-25
Salem

## Bridge Idea

**To the Editor:**

Looks like it will be quite some time before we have a new bridge. (1) It has not been decided where to build it. (2) It will take two years to draw up plans and specifications. (3) More time to let it out on contract. (4) Three years or more before it is open to the public. The Salem bridges are part of Oregon Highway system. This information from all their offices.

The East-bound bridge was built in 1916 for horses, buggies and wagons. I was there; my father helped with the construction. A higher approach was built after the big flood that took the Mellow Moon skating rink down the river. Passenger cars weighing two tons or more, each, stopped end to end, plus a few logging trucks, add up to a lot of weight; too much for the old bridge.

Funneling from four lanes down to two and the resulting jockeying for position causes accidents. All south-bound traffic should be diverted to Front and Union.

My suggestion for a third bridge would be Market or Belmont Street. Certainly not Mission Street. The river is much too wide. It would cost a fantastic sum to build a bridge at that location.

An overhead ramp would permit free flow of traffic west on Edgewater and northwest area

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The World, Coos Bay------------------12-18

706

Two or more pickup loads of trash were dumped on State Highway Department property near the home of Gordon Justrom. An address was found in the rubbish giving the name of the person who dumped it. The garbage was cleared up by the dumper that evening.

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Oregon Journa
Portland

## Grant G
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Oregon Journal, Portland------------------------------------------------------------------12-27

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INFORMATIONAL
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My suggestion for a third bridge would be Market or Belmont Street. Certainly not Mission Street. The river is much too wide. It would cost a fantastic sum to build a bridge at that location.

An overhead ramp would permit free flow of traffic west on Edgewater and northwest area of Salem. Traffic could curve back into Wallace Road. This would eliminate one other bottle-neck going west on Marion Street bridge.

Mrs. Ernest Iufer
3995 12th St. SE.

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INFORMATIONAL
OBJECTIVE

Democrat-Herald 12-18
Albany

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The grant comes each year to counties which support local museums. Linn County applied for the money in November.

Linn's grant was part of an overall distribution of $27,500 for 16 Oregon counties that was approved by the highway commission.

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Oregon Journal---12-24
Portland

## Grant Goes To Champoeg

Oregon's Highway Division has received a $55,450 grant from the U.S. Department of Interior Bureau of Outdoor Recreation to purchase 51 acres adjoining Champoeg State Park in northern Marion County, according to Rep. Al Ullman, D-Ore.

The addition to the park, which is the site of Oregon's first territorial government, will be used as a scenic buffer and for nature trails, Ullman said. He said the grant must be matched by state funds.

Oregon Statesman, Salem------------------------------------------------12-23

# Public Upheld on Beach Rights

**By CHARLES E. BEGGS**
**Staff Writer, The Statesman**

The Oregon Supreme Court ruled Wednesday that the state has the right to restrict or prohibit construction between the high tide mark and the vegetation line on the ocean beaches.

The unanimous opinion written by Justice Edward Howell upheld the 1967 state law challenged by Lester Fultz and LEW Engineering Inc., who had sought to build an access road and revetment on the beach at South Neskowin.

The ruling involved two cases, affirming the decision of Tillamook County Circuit Judge J. S. Bohannon.

In the first case, the State Highway Commission and Highway Engineer Forrest Cooper sought to restrain construction of the road on the ground that the public had acquired easement rights to the beach area.

The Supreme Court upheld the state, noting that it ruled in 1969 that the public has acquired such an easement by custom and use.

The court also ruled that it was proper for Cooper to deny Fultz' application to complete the road on the grounds that it would constitute a public hazard and threaten the beach ecology.

The law resulted from the controversial "beach bill" of the 1967 Legislature, which declared that beach areas between ordinary high water marks and the vegetation line belong to the public and that the Highway Commission can regulate construction below the vegetation line.

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Oregon Journal---12-27
Portland

## Beach Use Suit Loses

SALEM (UPI) — A lower court order dismissing a suit by Atty. Gen. Lee Johnson which sought to prevent construction of a condominium at Cannon Beach was affirmed Monday by the Oregon Court of Appeals.

Johnson filed the suit against developer Robert Bauman saying the proposed 175-unit condominium would block public access to the beach.

Circuit Court Judge Thomas Edison agreed with Bauman's attorneys who said Johnson did not have authority to file suit. Edison said only the State Highway Commission could bring such a suit. The Appeals Court affirmed that ruling.

(More appeals court decisions on Page 4, Sec. 3)

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Daily Argus-Observer
Ontario---------12-20

## Trucking Permits Available at JV

JORDAN VALLEY- Transportation permits for oversize and/or overweight vehicles may now be obtained at Jordan Valley, according to R.L. Porter, Oregon state highway engineer.

The new permit office, located on Wroten Street in Jordan Valley, will be open from 8 a.m. to 5 p.m. Monday through Friday. The phone number is 586-9291.

It is located in the same building as the Motor Vehicle and PUC offices in Jordan Valley and will make a complete service available to the trucking industry.

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INFORMATIONAL
OBJECTIVE 2

INFORMATIONAL
OBJECTIVE 3

Oregon Journal---12-24
Portland

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INFORMATIONAL
OBJECTIVE 5

Mail Tribune-----12-19
Medford

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Daily Tidings, Ashland---------------------------------------------------12-20

### Street Cuts Campus

## Closure Of Palm Asked

Southern Oregon College has formally asked the city of Ashland to close Palm Avenue, the agenda for Tuesday's meeting of the city council showed today.

The request was made in a letter to Mayor Charles McKeen and members of the council from Donald E. Lewis, dean of administration on the Ashland campus.

Earlier, the college had informally indicated it planned to ask for the closure of the street, which now bisects a portion of the campus.

The SOC request is to vacate Palm Avenue from Ashland Street to Siskiyou Boulevard.

The council agenda also listed a proposed resolution calling a public hearing on the street closure for Feb. 1.

According to an informal agreement reached by college and city representatives several years ago, Palm was to be closed as soon as SOC had completed some work to widen Mountain Avenue and had initiated steps on a proposed south campus bypass road.

At a recent meeting with the council, Lewis reminded council members that SOC had met the conditions in the agreement. Councilman James Conklin, chairman of the streets and traffic committee, said then he was ready to recommend that Palm be closed.

Tuesday's council session starts at 7:30 p.m. in the city hall's council meeting room.

Also on the three-page agenda is action on the possible purchase of a 1914, used generator to get Ashland back in the power-producing business.

A report handed to the council last week showed Ashland could continue to buy power cheaper than it could generate it with the old machine.

City Administrator Brian Almquist is expected to ask the council to give up the city's Federal Power Commission license. The FPC wants Ashland to surrender the license because it no longer operates its Ashland Creek power house. The generator there was dismantled in 1968 after becoming inoperable.

Also included on the agenda:

—A recommendation by the finance and property committee to let the Ashland Economic Development Commission spend $389.50 to enclose a portion of the city's industrial park with a security fence. A resident living nearby had complained of trash dumping at the site.

—A recommendation to approve a request by Almquist to sell corporate stocks held by the cemetery trust fund. The book value of the stocks was listed as $300.

The council's streets and traffic committee is scheduled to present plans for a proposed project to revamp the junction of Highway 66 and Siskiyou Boulevard.

The project was proposed under a federal aid traffic safety program known as TOPICS.

In a related matter, the council will receive a letter from Stanley Jobe, superintendent of the Ashland School District, urging that traffic signals be installed on Walker Avenue at Highways

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Oregon Statesman, Salem

## New Milepost Si
## Decorate Freewa

(Picture on page 1.)

INFORMATIONAL
OBJECTIVE 2

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A State Highway Division official told the council earlier that traffic signals there would not be warranted.

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Oregon Statesman, Salem----------------12-28

## New Milepost Signs Decorate Freeway

(Picture on page 1.)

By Friday, Interstate 5 in Oregon will have 636 new milepost signs.

The signs —318 in each direction —are being installed this week to conform to the U.S. Department of Transportation's new manual on Uniform Traffic Control Devices. Oregon Highway Commission adopted the manual last month.

So that the Oregon signs will be standardized with those in other states, two basic changes have been made, explained Robert Bothman, maintenance engineer for the State Highway Division.

First, the signs are "considerably larger" than those they replace, he said. The old markers were eight inches by 24 inches, while the new ones are 12 inches wide and 24, 36 or 48 inches tall, depending upon whether one, two or three digits are used.

The new signs have 10-inch white numerals on a vertical green panel, compared to the previously used black on white. The replacements also add the word "mile" in capital letters.

Secondly, the numerical order of the signs will run from south to north, reversing the present Washington border to California border listing, Bothman said.

Oregon also will begin numbering the Interstate 5 interchanges according to the nearest mileposts. For example the Santiam interchanges east of Salem will be number 254, corresponding with the milepost. The numbers also will be installed on the destination signs along or above the freeway.

Bothman said he feels the new system will make it easier to give motorists directions.

The highway division plans eventually to change the east-west Interstate 80 milepost markers and to gradually convert on the primary and secondary highways.

on the primary and secondary road signs, which now are 10 inches tall, will be 18, 27 and 36 inches, he added.

INFORMATIONAL
OBJECTIVE 2

DECEMBER 30, 1971

Register-Guard, Eugene------------------------------------------------------------12-28

## Highway 126 planning

# 8-man team urged for by-pass study

The Eugene Planning Commission has recommended that a team to be named by the city for a study of the Highway 126 bypass route (Roosevelt Freeway) contain experts in eight fields.

The commission, which recently made the recommendation for a multi-disciplinary team, reached agreement on the composition of such a group at a meeting Monday.

The commission's suggestion is that the team include a planner, an engineer, an architect or landscape architect, a sociologist, a psychologist or physican, a property appraiser, an attorney and a person versed in ecology.

The recommendation will be forwarded to the mayor and city council, which will pick specific persons for the team.

The group is expected to make an independent study of the routing of the controversial freeway pr., t, although it is expected to cooperate with a State Highway Division group making an environmental impact study required by the federal government.

The project was delayed recently after it was determined that such a study would be required under federal regulations.

That decision came after the project already had aroused citizen opposition and the planning commission had recommended delay. The planning commission's proposal for delay included the suggestion for further study of the environmental impact by a team of experts.

When the city council accepted the planning commission's suggestion, it requested the commission to suggest the makeup of the team.

One question about the team, which so far has not been settled, is whether or not members of the team will be paid by the city for their work or whether the city will ask for volunteer service.

The projected freeway links Interstate 105 at the Washington-Jefferson Street Bridge with Highway 126 east of Fern Ridge Lake.

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News, Springfield----------------------------12-20

*In Others' Words*

INFORMATIONAL
OBJECTIVE 5

# Popular Bike Path

**(EDITOR'S NOTE: The last session of the legislature set up a system in which a portion of a city's gasoline tax refunds from the state must be allocated for bicycle paths. Previously, they were earmarked for street expenditures only. Redmond, according to the editorial below, has found a good use for such bicycle paths. Perhaps the same idea could solve a problem in Springfield.)**

* * *

**Ever since the new high school opened last year, the danger of students walking along Highway 126 has been an area of deep concern to some citizens in the community.**

**The climax came last spring when one girl was struck by an auto as she and her friends were walking to school. Many persons feared that this was only a prelude to a time when a student, instead of being injured, would be killed.**

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Enterprise-Courier, Oregon City---------12-21

# Bridge Walk Will Be Studied

A promise to study construction of a pedestrian walkway across the I-205 freeway bridge here has been made by the State Highway Commission.

~~In a letter~~ to Municipal Judge Robert Lohman of West Linn, Commission chairman Glenn L. Jackson said he has asked the highway staff to prepare rough estimates of the project.

Jackson said that although the commission doesn't have funds for the walkway now, "we are looking into the matter of federal aid financing . . ."

He added that federal money for such a project is presently uncertain and he hopes that some clarification soon will be available.

"If it is," continued Jackson, "the commission will make a reassessment."

Judge Lohman has been spearheading a campaign to get a walkway across the bridge because he handles the cases of persons cited by state police for illegally walking across the span. He has suggested that a footbridge could easily be erected underneath the bridge so people could walk across the river, watch Willamette Falls and view the fishermen at work.

He also suggested that the state include plans to install picnic areas or parks at either end.

Students at West Linn High School, including Lohman's daughter Debbie, a senior, also are conducting a campaign by letter urging construction of the walkway. They plan to write to city, state and federal officials asking that some pedestrian path be built.

Pedestrian traffic on the bridge now is prohibited.

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Daily Tidings, Ashland------------------12-20

INFORMATIONAL
OBJECTIVE 2

# Clearing To Begin Shortly

**Clearing operations will begin in the "immediate future" for a $1.2 million project to realign a sliding portion of I-5 south of Ashland, according to Bill Brown, district engineer for the State Highway Division.**

The construction will involve moving almost a mile of the interstate highway 150 feet into the side of the mountain, Brown said.

Bids for the work were opened this week in Salem with the apparent low bidder being Halvorson-Mason and S. Matusek Inc., of Portland, with a bid of $1.2 million.

The part of the highway to be repaired is known as the Niel Creek slide area and has caused continuous traffic problems.

About two years ago, all four lanes of the highway slid out, Brown remembered. Currently that section of highway is marked by signs reading "Sunken grade."

The slide area begins just south of the Siskiyou Information Center.

After some vegetation is cleared from the mountain, grading will begin, but not until the weather improves, the yards of earth to be taken from the hillside will be placed in three designated disposal areas along the highway, according to project plans. Brown explained that the earth will be put in areas "where it won't create an unsightly condition."

Once the construction is completed, scheduled about Oct. 10, 1972, the road will actually be better aligned, by eliminating one curve, Brown remarked.

Construction is not expected to stop through traffic. Cars will be channeled through the area on the existing highway.

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Democrat-Herald, Albany--------------12-23

# Court ruling reaffirms public's right to beaches, AG explains

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SALEM, Ore. (AP) — An Oregon Supreme Court decision announced Wednesday "reaffirms the public's right to the beaches," Atty. Gen. Lee Johnson says.

Johnson's staff defended the State Highway Engineer's ruling that Lester Fultz and L.E.W. Engineering Co. illegally constructed a road onto south Neskowin Beach. The engineer had also been upheld in Tillamook County Circuit Court.

Johnson said the decision "reaffirms the public's right to the beaches and insured that state government will have the tools to protect those rights.

"The case is significant because the developer was not only enjoined from constructing an unsightly development on the beaches, but also is required to remove the road and revetment he has already constructed."

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INFORMATIONAL
OBJECTIVE 5

News-Review-----12-22
Roseburg

# *Hiking Trail Study Slated*

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The recommendation to make the study was proposed at the recent meeting of the Highway Commission's special advisory council on recreation trails.

Council member Max Schafer of Seaside, a long-time resident of the Oregon Coast and an avid hiker who has hiked over most of the Oregon beaches and headlands, said that he believed all that would be needed would probably be some signs directing hikers to public roads around private lands, some headlands and the numerous bays and rivers.

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Oregon Statesman
Salem

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Judge Virgil Langtr
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Judge Thomas A. E
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Register-Guard, Eugene------------------------------------------------------12-28

## Highway 126 planning

# 8-man team urged for by-pass study

The Eugene Planning Commission has recommended that a team to be named by the city for a study of the Highway 126 bypass route (Roosevelt Freeway) contain experts in eight fields.

The commission, which recently made the recommendation for a multi-disciplinary team, reached agreement on the composition of such a group at a meeting Monday.

The commission's suggestion is that the team include a planner, an engineer, an architect or landscape architect, a sociologist, a psychologist or physican, a property appraiser, an attorney and a person versed in ecology.

The recommendation will be forwarded to the mayor and city council, which will pick specific persons for the team.

The group is expected to make an independent study of the routing of the controversial freeway project, although it is expected to cooperate with a State Highway Division group making an environmental impact study required by the federal government.

The project was delayed recently after it was determined that such a study would be required under federal regulations.

That decision came after the project already had aroused citizen opposition and the planning commission had recommended delay. The planning commission's proposal for delay included the suggestion for further study of the environmental impact by a team of experts.

When the city council accepted the planning commission's suggestion, it requested the commission to suggest the makeup of the team.

One question about the team, which so far has not been settled, is whether or not members of the team will be paid by the city for their work or whether the city will ask for volunteer service.

The projected freeway links Interstate 105 at the Washington-Jefferson Street Bridge with Highway 126 east of Fern Ridge Lake.

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News, Springfield-----------------------------12-20

INFORMATIONAL
OBJECTIVE 5

*In Others' Words*

# Popular Bike Path

(EDITOR'S NOTE: The last session of the legislature set up a system in which a portion of a city's gasoline tax refunds from the state must be allocated for bicycle paths. Previously, they were earmarked for street expenditures only. Redmond, according to the editorial below, has found a good use for such bicycle paths. Perhaps the same idea could solve a problem in Springfield.)

* * *

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Daily Tidings, Ashland-----------------12-20

INFORMATIONAL
OBJECTIVE 2

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INFORMATIONAL
OBJECTIVE 5

News-Review-----12-22
Roseburg

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Porter indicated that the study would be done by the Parks and Recreation Section of the Highway Division with the results to be presented to the trails council within six months.

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Oregon Statesman 12-28
Salem

# Court Block Of AG Suit Is Upheld

The Oregon Court of Appeals ruled Monday that Atty. Gen. Lee Johnson had no authority to bring a suit to block construction of proposed condominiums at Cannon Beach.

It said that if any state agency has the right to bring such a suit, it is the Highway Commission.

The decision affirmed a Clatsop Circuit Court order dismissing Johnson's suit.

Johnson had filed the suit against W. C. Bauman Co., Franklin Service Co., and Howard S. Wright Construction Co.

Johnson claimed that the proposed buildings would interfere with the public's right to use the buildings for recreational purposes.

Judge Virgil Langtry wrote the opinion which upheld Circuit Judge Thomas A. Edison of Clatsop County.

Oregon Statesman 12-28
Salem

INFORMATIONAL
OBJECTIVE 2

## New Highway Markers

Secretly, editorial writers have enjoyed having Oregon's I-5 highway mileage markers as fouled up as they have been for years. It gave them something to write about when they reached the bottom of the editorial barrel.

They won't have those old mileage markers to kick around any more. As holiday travellers noted, a new set of numerals is being installed. By the end of this week they are scheduled to stretch along Interstate 5 from border to border.

The new numbering system starts at the California border and numbers north to conform with national highway standards. The numerals are twice the size of those previously used, again to conform nationally.

The chief complaint with the old system was with what the highway engineers called the "equations." Over the years, with the modernization of the highway, its length was reduced substantially. But most of the old mileage markers remained.

In some places, where newer markers had been installed, they were accurate. In others they were not.

The most obvious break was at Eugene where there was a 17-mile difference from one side of the city to the other. When newspapers complained about this, the Highway Division explained that the markers were for the benefit of their maintenance crews, not the public. Rather than go to the expense of installing new signs and altering their maintenance maps each time a new section of highway was completed, the highway engineers used "equations" on their maps ("Highway marker 3 equals 10 miles").

Now that I-5 is completed, however, a set of nationally-conforming markers can be installed with the assurance they will remain accurate indefinitely, useful not only to the highway crews but to the public as well.

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DECEMBER 30, 1971

INFORMATIONAL
OBJECTIVE 2

Oregon Statesman Salem 12-28

10Y

**Big Mileposts** Interstate 5's new milepost signs, being installed this week, will be more visible to motorists, as most will be twice as tall as existing markers, demonstrates Robert Bothman, maintenance engineer for the State Highway Division. The signs conform to federal standards. State primary and secondary roads later will be converted gradually to the larger markers. (Story on page 11.) (Statesman photo by John Ericksen.)

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Democrat-Herald 12-22
Albany

## Court upholds law regulating roads on state beaches

SALEM, Ore. (AP) — The Oregon Supreme Court upheld unanimously today a 1967 law giving the state highway engineer authority to block or regulate road construction below the vegetation line on ocean beaches.

The decision affirmed a Tillamook Circuit Court decision that ruled former State Highway Engineer Forrest Cooper acted properly in refusing to allow Lester E. Fultz and L-E-W Engineering Co. to build an access road at South Neskowin

Fultz and the engineering company own 363 acres with 2,800 feet of ocean frontage.

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Daily Jn'. of Commerce
Portland----------12-29

INFORMATIONAL
←
OBJECTIVE 7

## *Florence-Eugene Road improvement project hearing set Jan. 25*

SALEM [illegible] public [illegible] held at 2 p.m., Jan. 25, at the Mapleton Junior Senior High School complex, Mapleton, concerning proposed plans for future right-of-way acquisition and construction on the Saunders Creek-Mapleton Section of the Florence-Eugene Highway.

The proposal consists of reconstructing the existing facility [illegible] a basic two-lane road

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Daily Tidings---- 12-23
Ashland

TRAFFIC LIGHT

To the Edi[illegible]

Two weeks ago the State Highway Department [illegible] the city [illegible] that [illegible] was not quite heavy enough by federal standards to warrant [illegible] at Walker and Highway [illegible] [illegible] are [illegible] the [illegible] school [illegible]

[illegible]

[illegible] the state and federal government [illegible] they [illegible] and what they know [illegible] for the safety and well being [illegible] of Ashland

Ronald Steffani
872 Hillview Drive
Ashland

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Democrat-Herald, Albany----------

## N. Santiam lower bridge work resu

LYONS — Water depths on the North Santiam River have receded to allow construction to resume on a new bridge between Lyons a

High water dur three weeks kno 80 feet of work the river and re fectual a coffer pier footings.

Richard J. Garn general contract Oregon Highw project to replace 226 bridge, said his men is repairing this week.

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Garland said timetable is prestressed co from the Morse Harrisburg and into place acr about Feb. 15

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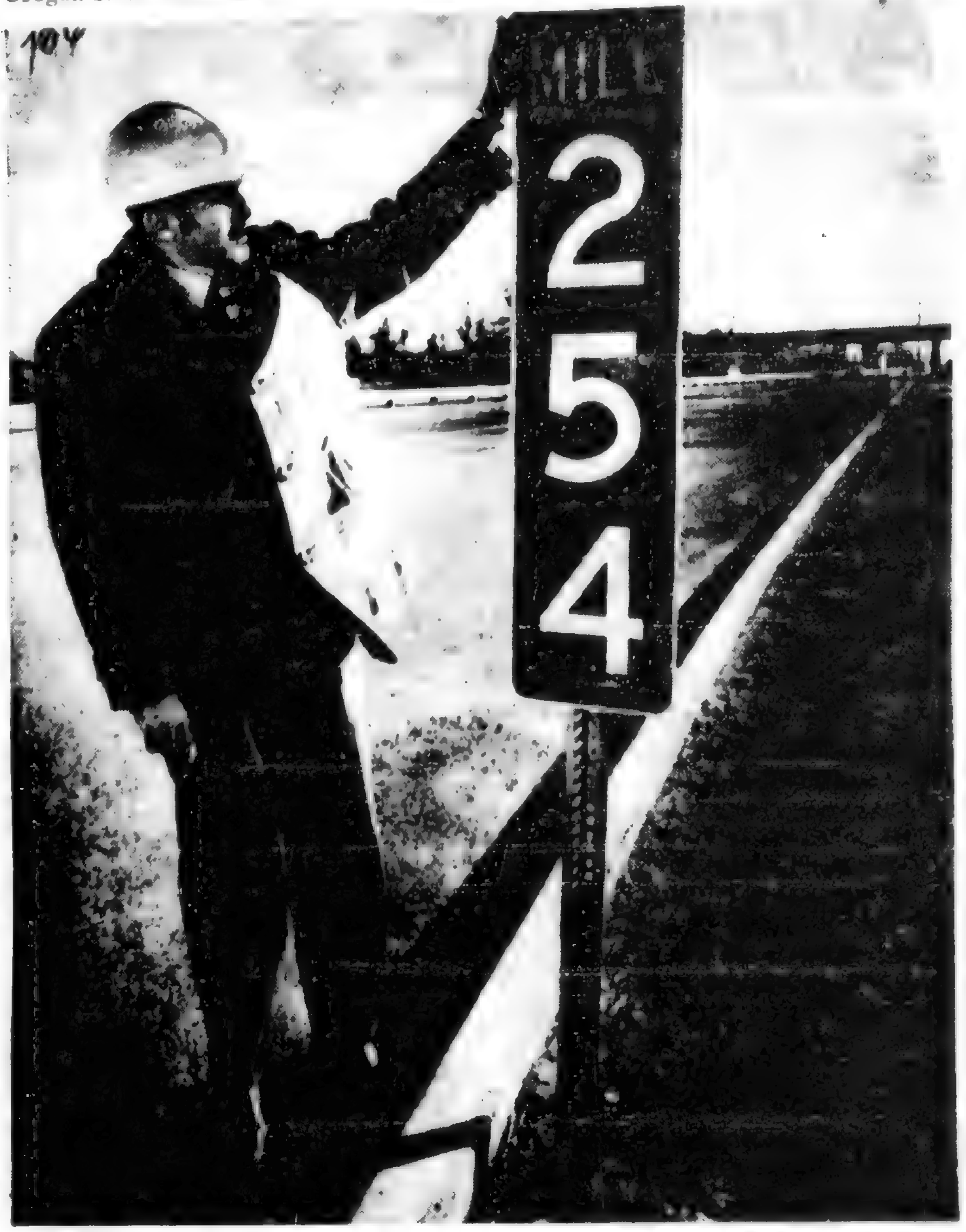
Oregon Statesman, Salem

10Y



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Daily Jn'. of Commerce
Portland---------12-29

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INFORMATIONAL
←
OBJECTIVE 7

SALEM — A formal corridor [illegible] public hearing will be held at 2 p.m., Jan. 25, at the Mapleton Junior-Senior High School complex, Mapleton, concerning proposed plans for future right-of-way acquisition and construction on the Saunders Creek-Mapleton Section of the Florence-Eugene Highway.

The proposal consists of reconstructing the existing facility to provide a basic two-lane road with 12-foot travel lanes and 10-foot shoulders. A curbed section is planned in the Mapleton vicinity consisting of four 12-foot travel lanes, 2-foot median, and 10-foot shoulders.

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Democrat-Herald, Albany--------------12-22

## N. Santiam lowers; bridge work resumes

LYONS — Water depths on the North Santiam River have receded to allow construction to resume on a new bridge between Lyons and Mehama.

High water during the past three weeks knocked out about 80 feet of work trestle across the river and rendered ineffectual a cofferdam around pier footings.

Richard J. Garland of Salem, general contractor on the Oregon Highway Division project to replace the Highway 226 bridge, said his crew of five men is repairing flood damage this week.

If river levels stay low enough to drive a new cofferdam, the firm will pour the north pier footings and then river level won't make as much difference as they complete the above-water portions of the piers.

Garland said the present timetable is to bring the prestressed concrete beams from the Morse Bros. plant at Harrisburg and swing them into place across the river about Feb. 15.

The 480-foot-long bridge and realigned roadway is a $995,000 project with 60 per cent of the cost paid by federal funds and the rest by state money. Project completion is due late next summer.

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Daily Tidings---- 12-23
Ashland

### TRAFFIC LIGHT

To the Editor

Two weeks ago the State Highway Department told the city council that automobile traffic was not quite heavy enough (by federal standards) to warrant a traffic light at Walker and Highway 66. This may well be true, but what we are worried about is the pedestrian (school children) traffic at this intersection.

Has the federal, state or local government devised cold statistical standards for the number of pedestrians needed to justify traffic control devices?

Will our city council be badgered by the state and federal government, or will they demand what they know is needed for the safety and well being of the citizens of Ashland?

Ronald Steffani
872 Hillview Drive
Ashland

DECEMBER 30, 1971

Oregon Statesman, Salem------------------------------------12-27

# Mayor Proud of Woodburn's Achievements in Course of '71

**By PETE LAURS**
**Statesman Correspondent**

WOODBURN — A review of accomplishments in the various departments of the City of Woodburn during 1971 has been presented to the City Council by Mayor Walter Lawson.

The mayor said it is his belief that it was an impressive amount of work for a city of this size and sounds like the work of an "All American City." He hopes the city can build on the record and continue the level of performance in 1972.

Mayor Lawson stated the following list includes only highlights and does not include major activities in the operating departments:

—Voter approval was obtained for sewer bonds, railroad projection bonds and the city budget.

—Cross arms, signals and gongs were placed at five intersections with the Southern Pacific main line along Front Street.

Year-End Review
HIGHLIGHTS OF THE NEWS

—Garfield and Young streets were realigned at Front, concluding an idea first generated in 1936.

**Sewage Agreement**

—Agreement reached with Corrections Division and State General Services division on sharing costs for interim sewage treatment facilities and to lease land.

—Construction started on the sewage interim treatment facilities and the East Hardcastle sewage collection district.

—Agreement signed with the State Highway Division and Marion County for intertie between Highways 99E and 214, with bids to be opened in May, 1972.

—An additional agreement for the State Highway Division to install and maintain a three-phase traffic signal at Boones Ferry Road and Highway 214 was approved and will be installed with the intertie construction.

—An off-street parking district was formed and leases consummated for the lot at 1st Street, Garfield and Hayes streets.

**Back-Up Water**

—Agreement signed with Birds Eye plant to provide back-up water supply in case of emergency.

—Hooper property annexed and zoned to allow construction of Careage Convalescent Hospital.

—The first office ever created to aid Russian citizens established by grants from Tolstoy Foundation and the federal government.

—Activities of the community liaison office expanded in the schools and community.

—Police department played leading role in apprehension of "ski mask" bandits that terrorized the area.

—One-way grid system placed in operation. Street crews made nearly 300 signs to implement

state electrical code and public dances.

—Planning Commission finished 18 months' study of a new zoning code. Nearly completed study of a sign code.

—Industrial park zoned for industrial sites.

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INFORMATIONAL
OBJECTIVE 2

Enterprise-Courier
Oregon City------12-21

## Little Theater Seeks New Play

Members of the West Linn Little Theater are busy looking for a new home and a new play.

Following the success of the fall play, "The Great Diamond Robbery," directed by Ralph Geirke, they hope to find an equally appealing light comedy or musical for production in the spring. Naoma Polehn will be the director.

Members also are looking for a permanent home. Nan Steenson, theater secretary, has contacted the State Highway Department concerning any building that might be moved for road construction.

Anyone knowing of land available or land that might be donated to Little Theater is asked to contact Mrs. Steenson at 636-9455.

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INFORMATIONAL
OBJECTIVE ↓ 2

Oregon Journal---12-28
Portland

## Mile Post Changes Under Way

SALEM (UPI) — The state Highway Division has begun changing its mile post signs on the interstate highway system to comply with new federal highway administration regulations.

Under the new plan mile posts on the odd-numbered interstate highways, those running from south to north, will be numbered starting at the southern terminus, while those on the even-numbered highways, running from west to east, will begin with the numbering at the western terminus.

Interstate 5 in Oregon has been numbered from north to south and under the new system this will be reversed. The changeover is expected to be completed this week.

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INFO
OBJECTIVE [illegible]

The World-------12-21
Coos Bay

## Coos And Curry To Get Aid

Coos and Curry counties will share in aid to 16 Oregon counties participating in the museum-aid program, according to R. L. Porter, state highway engineer.

Amount approved by the State Highway Commission for Coos was $406.27 for the Coos-Curry Pioneer and Historical Association Museum in North Bend.

The figure for the Chetco Museum at Harbor was $396.66.

The highway commission approved a total distribution of $26,500 to the 16 counties. Doug-

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Daily Journal of Commerce, Portland----12-29

## Highway division approves Portland project

The Oregon State Highway Division, at the request of the Multnomah County Board of Commissioners, has approved the location and design of the NE 148th Ave.-NE 188th Ave. section of NE Halsey St. in east Multnomah County.

The job will consist of draining, grading, curbing and paving a four-lane facilities about 1.93 miles long on NE Halsey between NE 148th and 188th. Traffic signals will be installed.

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INFORMATIONAL
OBJECTIVE 5

Oregon Journal, Portland-----------------------------------------12-29

## Gov. West Would Be Pleased

While the Oregon Supreme Court last week just about settled the question of the public's right to use the dry sand area on the Oregon beaches, this is a good time to point out that our beach protection is based on a lot more than law and court decisions.

In upholding the right of the State Highway Commission to deny construction of a private road on dry sand at Neskowin, the high court reaffirmed a position taken two years ago in the case of a Cannon Beach motel owner who tried to fence off the public from dry sands.

Because it applied the English common law doctrine of custom, the court seemed to say that the 1967 beach law passed by the Oregon Legislature permits public use of dry sands for the full length of the coast, even on those parts where "prescriptive rights" through extended use are not as well established as they are on northern beaches.

Beyond all this is the reassuring fact that not merely wet and dry sand areas but uplands too are in public ownership along more than 50 per cent of the coastline. These include federal, state, county and local holdings.

The state alone has 52 parks on the coast. Additionally, the State Highway Department is proceeding with the purchase and development of access areas which, counting the parks themselves, add up to 100 such places where the beaches either are or will be easily reached.

The new access areas include parking spaces and restroom facilities. The provisions for parking are seen as a necessary accompaniment to new strict regulation of motor vehicles on the sands. The state recognizes, says Kessler Cannon, administrative assistant to Gov. McCall, that barring automobiles from beaches works a hardship on persons too infirm to walk. The new access plan makes it possible for such persons to be driven to the beaches without the danger of vehicular traffic on the sands themselves.

The standards of public beach enjoyment have been further raised by the creation of a new cadet corps of college men interested in police work who, working with the State Police, patrol the beaches in vehicles equipped for fire suppression, rescue, cleanup and first aid. They enforce anti-litter and anti-vandalism laws. They have been instrumental in saving several lives. They are trained in dealing with the public. The experiment has been very well accepted.

What Oregon has done to protect its beaches both through legislation and in other ways has aroused interest in other coastal states, most of which are far behind us.

Gov. Oswald West started it all in 1913 when he pushed through legislation which designated the tidal strips as state highways, later redesignated as recreation areas. He would be pleased with what has been added to his beginnings.

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The Oregonian--- 12-29
Portland

## State cancels highway hearing

SALEM (AP) — A public hearing on the proposal for construction of the Saunders Creek-Mapleton section of the Florence-Eugene Highway has been canceled, Asst. Highway Engineer Fred Klaboe said.

The hearing was scheduled for Jan. 25. Klaboe said it

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Gazette-Times, Corvallis--------------12-20

## Governor Selects Development Unit

SALEM, Ore. (AP) — Gov. Tom McCall appointed an 11-member management development steering committee today.

The committee will develop a program to train people for management jobs in state government.

About 15 per cent of the managerial staff in state government will retire in the next five years.

Members of the committee are:

supervisor of Pacific North west Bell; assistant prof Noble Deckard of Orego State University; Donald Dils community relations manage of Weyerhaeuser Co.; ad ministrator William Hughes of the state personnel division; Washington County administrative officer Richard Milbrodt; employment administrator Ross Morgan, associate prof. Richard Robinson of Portland State University, state forester J.E.

# Achievements in Course of '71

By PETE LAURS

**Statesman Correspondent**

WOODBURN — A review of accomplishments in the various departments of the City of Woodburn during 1971 has been presented to the City Council by Mayor Walter Lawson.

The mayor said it is his belief that it was an impressive amount of work for a city of this size and sounds like the work of an "All American City." He hopes the city can build on the record and continue the level of performance in 1972.

Mayor Lawson stated the following list includes only highlights and does not include major activities in the operating departments:

—Voter approval was obtained for sewer bonds, railroad protection bonds and the city budget.

—Cross arms, signals and gongs were placed at five intersections with the Southern Pacific main line along Front Street.

**Year-End Review**
**HIGHLIGHTS OF THE NEWS**

—Garfield and Young streets were realigned at Front, concluding an idea first generated in 1936.

**Sewage Agreement**

—Agreement reached with Corrections Division and State General Services division on sharing costs for interim sewage treatment facilities and to lease land.

—Construction started on the sewage interim treatment facilities and the East Hardcastle sewage collection district.

—Agreement signed with the State Highway Division and Marion County for intertie between Highways 99E and 214, with bids to be opened in May, 1972.

—An additional agreement for the State Highway Division to install and maintain a three-phase traffic signal at Boones Ferry Road and Highway 214 was approved and will be installed with the intertie construction.

—An off-street parking district was formed and leases consummated for the lot at 1st Street, Garfield and Hayes streets.

**Back-Up Water**

—Agreement signed with Birds Eye plant to provide back-up water supply in case of emergency.

—Hooper property annexed and zoned to allow construction of Careage Convalescent Hospital.

—The first office ever created to aid Russian citizens established by grants from Tolstoy Foundation and the federal government.

—Activities of the community liaison office expanded in the schools and community.

—Police department played leading role in apprehension of "ski mask" bandits that terrorized the area.

—One-way grid system placed in operation. Street crews made nearly 300 signs to implement system.

—Regulatory ordinances adopted concerning fire zones, merchant police, retention of records, state plumbing code, state electrical code and public dances.

—Planning Commission finished 18 months' study of a new zoning code. Nearly completed study of a sign code.

—Industrial park zoned for industrial sites.

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INFORMATIONAL
OBJECTIVE 2

Daily Journal of Commerce, Portland----12-29

## Highway division approves Portland project

The Oregon State Highway Division, at the request of the Multnomah County Board of Commissioners, has approved the location and design of the NE 148th Ave.-NE 188th Ave. section of NE Halsey St. in east Multnomah County.

The job will consist of draining, grading, curbing and paving a four-lane facilities about 1.93 miles long on NE Halsey between NE 148th and 188th. Traffic signals will be installed.

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Enterprise-Courier
Oregon City------12-21

## Little Theater Seeks New Play

Members of the West Linn Little Theater are busy looking for a new home and a new play.

Following the success of the fall play, "The Great Diamond Robbery," directed by Ralph Geirke, they hope to find an equally appealing light comedy or musical for production in the spring. Naoma Polehn will be the director.

Members also are looking for a permanent home. Nan Steenson, theater secretary, has contacted the State Highway Department concerning any building that might be moved for road construction.

Anyone knowing of land available or land that might be donated to Little Theater is asked to contact Mrs. Steenson at 636-9455.

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INFORMATIONAL
OBJECTIVE ↓ 2

Oregon Journal---12-28
Portland

## Mile Post Changes Under Way

SALEM (UPI) — The state Highway Division has begun changing its mile post signs on the interstate highway system to comply with new federal highway administration regulations.

Under the new plan mile posts on the odd-numbered interstate highways, those running from south to north, will be numbered starting at the southern terminus, while those on the even-numbered highways, running from west to east, will begin with the numbering at the western terminus.

Interstate 5 in Oregon has been numbered from north to south and under the new system this will be reversed. The changeover is expected to be completed this week.

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INFORMATIONAL
OBJECTIVE 5

Oregon Journal, Portland----------------------------------------12-29

## Gov. West Would Be Pleased

While the Oregon Supreme Court last week just about settled the question of the public's right to use the dry sand area on the Oregon beaches, this is a good time to point out that our beach protection is based on a lot more than law and court decisions.

In upholding the right of the State Highway Commission to deny construction of a private road on dry sand at Neskowin, the high court reaffirmed a position taken two years ago in the case of a Cannon Beach motel owner who tried to fence off the public from dry sands.

Because it applied the English common law doctrine of custom, the court seemed to say that the 1967 beach law passed by the Oregon Legislature permits public use of dry sands for the full length of the coast, even on those parts where "prescriptive rights" through extended use are not as well established as they are on northern beaches.

Beyond all this is the reassuring fact that not merely wet and dry sand areas but uplands too are in public ownership along more than 50 per cent of the coastline. These include federal, state, county and local holdings.

The state alone has 52 parks on the coast. Additionally, the State Highway Department is proceeding with the purchase and development of access areas which, counting the parks themselves, add up to 100 such places where the beaches either are or will be easily reached.

The new access areas include parking spaces and restroom facilities. The provisions for parking are seen as a necessary accompaniment to new strict regulation of motor vehicles on the sands. The state recognizes, says Kessler Cannon, administrative assistant to Gov. McCall, that barring automobiles from beaches works a hardship on persons too infirm to walk. The new access plan makes it possible for such persons to be driven to the beaches without the danger of vehicular traffic on the sands themselves.

The standards of public beach enjoyment have been further raised by the creation of a new cadet corps of college men interested in police work who, working with the State Police, patrol the beaches in vehicles equipped for fire suppression, rescue, cleanup and first aid. They enforce anti-litter and anti-vandalism laws. They have been instrumental in saving several lives. They are trained in dealing with the public. The experiment has been very well accepted.

What Oregon has done to protect its beaches both through legislation and in other ways has aroused interest in other coastal states, most of which are far behind us.

Gov. Oswald West started it all in 1913 when he pushed through legislation which designated the tidal strips as state highways, later redesignated as recreation areas. He would be pleased with what has been added to his beginnings.

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The World-------12-21
Coos Bay

## Coos And Curry To Get Aid

Coos and Curry counties will share in aid to 16 Oregon counties participating in the museum-aid program, according to R. L. Porter, state highway engineer.

Amount approved by the State Highway Commission for Coos was $406.27 for the Coos-Curry Pioneer and Historical Association Museum in North Bend.

The figure for the Chetco Museum at Harbor was $396.66.

The highway commission approved a total distribution of $26,500 to the 16 counties. Douglas County recevied the largest figure of $2,708.48 along with museums in Jackson, Josephine, Lane, Klamath and Tillamook counties.

INFO
←
OBJECTIVE 3

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The Oregonian--- 12-29
Portland

## State cancels highway hearing

SALEM (AP) — A public hearing on the proposal for construction of the Saunders Creek-Mapleton section of the Florence-Eugene Highway has been canceled, Asst. Highway Engineer Fred Klaboe said.

The hearing was scheduled for Jan. 25. Klaboe said it was canceled because more studies are required. No new date for the hearing has been scheduled.

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Gazette-Times, Corvallis---------------12-20

## Governor Selects Development Unit

SALEM, Ore. (AP) — Gov. Tom McCall appointed an 11-member management development steering committee today.

The committee will develop a program to train people for management jobs in state government.

About 15 per cent of the managerial staff in state government will retire in the next five years.

Members of the committee are:

State highway administrator George Baldwin; insurance commissioner Cornelius Bateson; Erwin L.Boring, area personnel supervisor of Pacific Northwest Bell; assistant prof Noble Deckard of Oregon State University; Donald Dils community relations manager of Weyerhaeuser Co.; administrator William Hughes of the state personnel division; Washington County administrative officer Richard Milbrodt; employment administrator Ross Morgan, associate prof. Richard Robinson of Portland State University, state forester J.E. Schroeder, and Robert Torheim, deputy regional forester for the U.S. Forest Service.

Boring will serve as chairman for the first year.

1979 Columbia R. Br. (N. Channel 890
Superstruc.) I-205

Filming

C&a 6197 7-21-77
6-25-80
1-3-80

8905
filming
George
Bill

File

1919 NW Thurman    Portland, OR 97209-1787

September 1, 1981

Groves Atkinson
P.O. Box 4556
Vancouver, WA 98662

Att: Ed Boyan

Columbia River Bridge
North Channel Superstructure
Contract No. 8905

As requested we had a work print made for you of movie footage shot on the superstructure portion of the Columbia River Bridge project. We will also have made any other copies you need. All of this copy work will be done at your expense. Payment to be made directly to the processor.

We are making this footage available to you with the stipulation that you will get our approval for any use you are going to make of the film other than just private showing of the film. We will approve use of footage which we shot for producing a film of the superstructure construction providing we have the opportunity to review the film in advance of any release and any material objectionable to us is removed and providing the film is not rented or sold for profit.

**Please indicate Groves-Atkinson's acceptance of these terms by returning a signed copy of this letter.**

ALLAN C. HARWOOD
Projects Engineer

Date ____________    ____________ Groves-Atkinson, a Joint Venture

8905

filming

c

STATE OF OREGON
HIGHWAY DIVISION

INTEROFFICE MEMO

TO: GEORGE BELL

DATE: January 30, 1981

FROM: ALLAN C. HARWOOD Allan Harwood

SUBJECT: I-205 Bridge Films

I don't know the mechanics of Omega's proposition but do not favor allowing a private firm to distribute the film for a profit. It seems to me we would have to take bids or at least make known the film was available to other firms for distribution on a royalty basis.

If we are going to seriously consider Omega's proposal we should first discuss it with FHWA since the films were made with Federal participation in the costs. Of course, we do have the problem with the Fremont film of not being able to locate the master copy.

I would like to see the films get a wider circulation which could probably be accomplished by notices in professional and trade magazines that the film was available.

Any agreement would also have to reserve our right to not only sell copies of the films but also to loan copies of the film with no restrictions.

Contains
Recycled
Materials
81-125-1387

SP*75683-125

STATE OF OREGON

INTEROFFICE MEMO

TO: George H. Bell
Assistant Director
Department of Transportation

DATE: January 27, 1981

FROM: Jack L. Sollis JLS
Assistant Attorney General and Counsel

SUBJECT: Use of I-205 Bridge Films

I have reviewed the proposal from Omega Films and feel that there is nothing wrong with entering into a contract with Omega Films, as long as it is clearly understood that anyone requesting a copy of a film would be entitled to it as it is a public record. Therefore, as you suggest in your note, the contract with Omega Films, should it be entered into, would have to be on a non-exclusive basis. While Omega Films could distribute the film and pay a royalty for it, anyone learning of the existance of the film could request a copy from the State for the costs of reproduction handling and mailing.

JLS:ls

gb will respond

**Omega Films**

**16214 N.W. 41st Avenue, Ridgefield, WA 98642 (206) 574-6138**

Jan. 21, 1981

Mr. George Bell
Public Affairs Director
Room 103
Oregon Dept. of Transportation
Salem, OR 97310

RE: THE EDUCATIONAL VALUE OF BRIDGE FILMS

Dear Goerge,

As we discussed on the phone yesterday, I think the Oregon Department of Transportation films on the construction of the sub-structure of the Columbia River I-205 bridge and the raising of the Fremont bridge, have important educational value.

I want to distribute these films to engineering schools, and other institutions, throughout the United States and other countries. In return for distribution rights Omega Films will pay a handsome royalty back to the taxpayers of Oregon--just as do timber cutters do when they make a profit from state owned forests.

I will submit a proposal outlining the specifics of my distribution plans after I hear from you.

Sincerely,

Jim Ciletti

Jim Ciletti

P.S. I am currently marketing other films on a similar royalty basis which I pay to the original producers of the films.

Form 81-734-3030

L

OREGON STATE HIGHWAY DIVISION
INTER-OFFICE CORRESPONDENCE
Portland, Oregon
July 7, 1980

FILE:

NOTED
H. S. COULTER

**FROM:** ALLAN C. HARWOOD — Allan C. Harwood

**SUBJECT:** Filming

**TO:** C. T. KEASEY

The film of the substructure construction of the I-205 bridge has been reasonably well received. A number of inquiries have been received about the subsequent films of superstructure construction and I recommend we have at least the second film made.

Rather than contracting for a completed film I suggest a firm be engaged to do on-site filming and sound recordings. At a later date the editing and completion of the film could be contracted for.

I feel this procedure would provide us with greater flexibility and should be less costly than contracting for a finished film at this time.

My estimate of cost for the filming based on the quantities shown in the bid schedule is as follows:

| | | | |
|---|---|---|---|
| Filming day | 10 days | @ $400 | $4,000 |
| Filming-partial day | 25 days | @ 250 | 6,250 |
| Sound recording-full day | 5 days | @ 200 | 1,000 |
| Sound recording-partial day | 5 days | @ 160 | 800 |
| Film | 1,6000feet | @ 0.70 | 11,200 |
| | | | $23,250 |

RECEIVED
STATE HWY ENGR
JUL 10 '80
REFER TO Keasey
FOR
Info | ... | File ✓

APPROVED
Coulter
STATE HIGHWAY ENGINEER
DATE: 7/11/80

7/9/80

Scott —
I agree with Harwood and recommend that we proceed on this basis.
C T Keasey

RECEIVED
JUL 9 1980
CONSTRUCTION BRANCH
Keasey K
Jackmond
Hopkins
Williams
Johnson
Glenn
Richards
Berg
Inloes
Widmer
Gebauer
Church

Proceed w/ consultant selection, etc. —

This is an invitation to bid on a personal services contract to provide personnel and equipment for filming and synchronized sound recording of on-site I-205 bridge construction activities and interviews. As a personal services contract, bids for providing the services will be evaluated by a selection committee on the basis of the qualifications of personnel providing the service, the equipment proposed for use, availability of the supplier of the service as well as the amount bid.

## II - DESCRIPTION OF PROJECT

### General

The proposed Columbia River crossing is 11,753 feet long, consisting of two pairs of twin structures, each carrying four 12-foot travel lanes with two 10-foot shoulders. The 68-foot wide roadways are separated by a 12-foot wide median containing a 9'4" combination pedestrian and bicycle path.

The crossing is divided into three sections: the North Bridges (Washington Approach and North Channel) 7,463 feet in length; the South Channel Bridges 3,120 feet in length; and the Government Island Fill 1,170 feet in length connecting the North and South Channel structures.

Span lengths in these structures vary from 125 to 600 feet. The main span over the navigable channel is 600 feet. This provides 469 feet of horizontal clearance for the 300-foot wide channel and has a minimum vertical clearance of 144 feet above mean low water. The structures are to be all concrete and are being constructed in place except for the southerly 14 spans of the North Channel structures.

Concrete segments for the southerly 14 spans of North Channel structures are being produced in a casting yard approximately 5 miles downstream from the crossing. The segments are transported to the site by barge.

### Schedule

Work is presently underway on the Washington Approach, the North Channel Superstructure and the South Channel Bridges. The North Channel Substructure contract, which was the subject of the first film in the series covering construction of the crossing, is completed as is the film.

Completion of the crossing is contemplated late 1982 or early 1983. Most of the filming is expected to be completed by late summer of 1982.

## III - CONTENT OF FILMS

The following is a general description of the types of construction activities or items to be covered by this photography. This description is intended as examples only and photography will not be limited to the items shown.

### Film 1, Substrcture and Government Island Fill (Film Completed)

#### Pier Construction

Pier 13 - Excavation, identification of Troutdale Formation, precasting caisson, transportation of caisson, placement of caisson, tremie concrete, and pier construction.

Pier 12 - Sheet pile driving and cofferdam construction, excavation, tremie concrete, dewatering, and pier construction.

Piers 11 and 14 - Limited coverage of convential construction, including excavation, pile driving, cofferdam construction, seal concrete, and pier construction.

Piers 15 to 26 - The construction sequence of a typical bell pier, including excavation, placement of template, pile driving, casting, transportation and placement of bell section, seal pour, and pier construction.

#### Government Island Fill

Limited coverage of the placement of the hydraulic fill on Government Island.

#### Miscellaneous

Such additional construction activities, drawings, or general interest items as required for a complete film.

### Film 2, North Channel Superstructure and Washington Approach

#### General

Mobilization, quality control, and dimensional and survey control.

#### North Channel Superstructure

Erection and progressive growth of a typical segmental span. This will include dimensional and quality control of precast concrete segments in the casting yard, casting, transporting, lifting and anchoring of precast segments, cast-in-place segments at pier tops and joining sections, post-tensioning operations, and completion of the spans.

Washington Approach

Limited covereage of conventional construction practices in these spans and connection to the North Channel structure.

Miscellaneous

Any other construction activity, drawings, or items of general interest necessary for a complete film.

Film 3, Total Project

This film is the final documentary film encompassing the total project.

Substructure, Government Island Fill

Inclusion of suitable protions of film previously produced for Film 1.

North Channel Superstructure and Washington Approach

Inclusion of suitable portions of film previously produced for Film 2.

South Channel Bridges

General coverage of construction of the bridges, depending on construction options incorporated by Contractor, with filming of construction details similar to those described for filming in Films 1 and 2.

General

Documentation of environmental areas, project scheduling, traffic impacts of completed project, et cetera.

Miscellaneous

Such additional construction activities, drawings, or items of general interest as necessary for complete documentation.

## IV - SUBMISSION OF PROPOSALS

Content of Proposal - Bidders are to submit the following

a. List and description of equipment proposed for use.

b. List of personnel with particular skills and qualifications.

c. Completed bid schedule.

d. Any special equipment available, additional charges for special equipment or photographic techniques which may enhance the planned movie such as time lapse photography.

e. Any other information which may assist the selection committee.

f. List of suggested additions, deletions or changes in contract requirements and effect on amount bid.

Date and Time for Receiving Proposals

Written proposals will be accepted up until 5 p.m. ________________

________________ by ______________________ at __________________________.

Written proposals may be supplemented by appearance of bidder before the committee to present additional information or suggestions for filming work on the project. Appearances will be scheduled __________________. To arrange a time, contact Allan Harwood 229-6250.

## V - CONTRACT REQUIREMENTS

The following are provisions and requirements to be included in the contract which the successful bidder will be required to sign.

### Special Provisions

#### Things to be done by the contractor

1. Contractor shall provide personnel and equipment at the construction site to perform filming and sound recordings when requested by the Project Engineer with one work days notice.

2. Personnel shall be as listed in the proposal or if unavailable equally qualified persons acceptable to the Project Engineer. If persons listed in the proposal are unavailable the Project Engineer shall be notified in advance of scheduled filming day.

3. Equipment shall be as listed in the proposal.

4. Materials - Film shall be Eastman ECN 16 mm color film.

5. Processing shall be by established laboratory equipped to process ECN film and prepare work prints.

6. Contractor shall provide facilities for review of the work print with the Project Engineer for the purpose of determining pay quantity and quality of exposed and processed film.

7. Contractor shall turn over all work prints and originals to the Project Engineer upon request of the Project Engineer.

8. Exposed film is understood to be the exclusive property of the State.

9. Contractor shall prepare itemized billings monthly and submit to the Projects Engineer.

#### Things to be done by the State

1. Provide on-site transportation for the contractor and access to construction areas.

2. Project Engineer or his representative shall accompany the contractor to identify scenes to be filmed.

3. Make progress payments in accordance with the provisions of the contract at the amount established in the bid schedule or in the amount established by the contract.

## GENERAL PROVISIONS:

Contractor shall save and hold harmless the State of Oregon, the Oregon Transportation Commission, and the Department of Transportation, its members, officers, agents and employees, from all claims, suits or actions of whatsoever nature resulting from or arising out of the activities of Contractor, its subcontractors, agents or employees, under this agreement.

Such provisions that are necessary to comply fully with the laws of the State of Oregon concerning public contracts and provisions to be included herein are hereby made a part of this agreement by reference, and Contractor shall comply with the obligations and other provisions of those laws the same as though those obligations were fully set out herein.

Contractor will comply with all existing Federal and State regulations and statutes with respect to equal opportunity and affirmative action.

Contractor shall maintain all books, documents, papers, accounting records and other evidence pertaining to costs incurred and shall make such materials available for audit at their respective offices at all reasonable times during the contract period and for three years from the date of final payment under the contract for inspection by the State highway agency, Federal Highway Administration or any authorized representatives of the Federal Government and copies thereof shall be furnished if requested.

State may terminate ~~this agreement~~ the contract upon three days' notice for any breach of the terms of this agreement by Contractor.

In the event of such termination, Contractor shall deliver to State all completed or partially completed satisfactory work and State shall pay Contractor for such satisfactory work. The amount paid shall be determined after taking into account not only the provisions for payment of work herein set forth but also Contractor's costs incurred for such satisfactory work, the nature of such satisfactory work, and any unpaid claims against Contractor of which State has notice in connection with Contractor's work under ~~this~~ the contract

### Bid items explanation, measurement and payme

Filming Day - any work day contractor is on the construction site for three (3) hours or more as requested by the Project Engineer for the purpose of filming construction activities.

Filming-partial day - Any work day contractor is on the construction site at the request of the Project Engineer for less than three (3) hours for the purpose of filming construction activities.

Sound recording full day - Any work day contractor is on the construction site for three (3) hours or more at the request of the Project Engineer for the purpose of recording construction sounds or interviews.

Sound recording partial day - Any work day contractor is on the construction site at the request of the Project Engineer for less than three (3) hours for the purpose of recording construction sounds or interviews.

Exposed film - The actual footage of film properly exposed processed and printed of a quality which is usable, with editing, for producing a finished film.

Payment for filming to include furnishing all equipment required for filming construction activities including cameras, tripods and appropriate lenses and qualified personnel.

Payment for sound recording to include all necessary equipment, personnel and materials for recording construction sounds and interviews.

Payment for exposed film to include compensation for furnishing and processing ECN film and making one work print.

## VI - BID SCHEDULE

Quantities are estimates only for the purpose of comparing the total amounts bid. In case of disagreement between the unit price entered below and the extension in the amount column, the unit price will be assumed correct. Payment will be made at the unit price bid for the actual number of units provided under the contract.

| | Units | Estimated Quantity | Amount Per Unit | Amount |
|---|---|---|---|---|
| Filming day | each | 10 days | | |
| Filming - partial day | each | 25 days | | |
| Sychronized sound recording full day | each | 5 days | | |
| Sychronized sound recording partial day | each | 5 days | | |
| Exposed film | per foot | 16,000 | | |

#8905
Xp.

L.

June 25, 1980

Odyssey Productions, Inc.
123 N. W. 2nd Avenue
Portland, OR 97209

AGR 7

MISC. CONTRACTS and
AGREEMENTS No. 6197

Gentlemen:

Attached for your records is a fully executed copy of an agreement covering extra sound and revised editing of the substructure film on Contract No. 6197.

We have retained a fully executed copy of this agreement for the Transportation Commission's files.

Sincerely,

Robert W. Gormsen
COMMISSION SERVICES

fkn

Att.

bc Allan Harwood

#8705

January 3, 1980

Odyssey Productions, Inc.
123 N.W. 2nd Avenue
Portland, OR 97209

MISC. CONTRACTS and
AGREEMENTS No. 6197

Gentlemen:

Attached for your records is a fully executed copy of a termination agreement for the filming of the I-205 Bridge.

We have retained a fully executed copy of this agreement for the Transportation Commission's files.

Sincerely,

Robert W. Gormsen
COMMISSION SERVICES

fkn

Att.

bc Jack Sollis
Vern Skoog - (agree. att. - see Sollis memo att.)
Al Harwood

**DEPARTMENT OF JUSTICE**

**Memorandum**

**TO:** H. S. Coulter
State Highway Engineer

**DATE:** December 4, 1979

**FROM:** Jack L. Sollis
Assistant Attorney General & Counsel

**SUBJECT:** Termination Agreement with Odyssey Productions

Attached please find three signed copies of a termination agreement with Odyssey Productions for the filming of the I-205 Bridge.

The agreement provides for a payment of $6,741.59 to the contractor as termination payment and also provides that the contractor will complete film number 1 and be paid for that in accordance with the provisions of the contract that is being terminated.

I would suggest as a paragraph to go in the weekly report the following "Termination agreement with Odyssey Productions. This terminates the agreement for the filming of the I-205 Bridge which was necessitated by legal action in which the contract was held to be illegal. The State is paying Odyssey Production $6,741.59 as damages for termination of the contract. The contractor will complete film number 1 and be paid in accordance with the terms in the original contract and then all obligations between the parties will cease." ([illegible])

Mr. Harwood expresses some concern over when the Contractor can be paid the $6,741.59 under this agreement and I feel that it would be in order [redacted] him this amount [redacted] also advise Mr. Harwood that no further release is necessary as this contract itself acts as a release of all obligations. ✓

JLS:sjb
attachment

cc: C.W. Head

RECEIVED
STATE HWY ENGR
DEC 4 - '79
REFER TO
FOR
Info Inves R/D D/R Sign Act File

[illegible]
123 N.W. [illegible]
[illegible]

Exec Dept
to sign
supplement
[illegible]

**DEPARTMENT OF JUSTICE**

**Memorandum**

**DATE:** November 9, 1979

RECEIVE
STATE HWY EN
NOV 9'79
REFER T
Hanson
FOR
Info | Invest | R/D | D/R | Sign

**TO:** H. S. Coulter
State Highway Engineer

**FROM:** Jack L. Sollis
Assistant Attorney General & Counsel

11/14

**SUBJECT:** Termination of Contract with Odyssey Productions, Inc. (filming of the I-205 Bridge)

Pls get signature

The contract entered into by the State on July 19, 1977 was declared invalid by the Circuit Court in the lawsuit brought by Photo-Art. As you will recall, Photo-Art was an unsuccessful bidder for the job. The decision of the Circuit Court was upheld by the Court of Appeals and therefore the contract entered into between the State and Contractor was determined to be invalid. The contractor was, however, allowed to complete phrase 1 (film number 1) of the contract in accordance with the terms of the contract.

The purpose of this agreement is to provide that with the payment of $6,741.59 that the contractor releases the State for any claim for compensation under the contract.

While it may seem a little weird to have a termination agreement for a contract that has already been declared invalid, the purpose of this is to pay off the contractor, get film number 1 completed and wind the matter up.

I am convenienced that the State does owe the Contractor for expenses incurred as a result of the court invalidating the contract and the injunction that prevented the Contractor from completing the full contract.

If the contractor were to go to court I believe it would be allowed to recover from the State the costs of the work they have done to date on Quamtum Meruit. This would mean that the court could decide what the cost to the contractor were for the work done which 3ould include overhead and profit and also damages suffered because of the termination of the contract. The contractor was in no way responsible for the termination of the contract and therefore would be entitled to recover not only the cost incurred in personally performing the contract, but also damages (including overhead and profit) for not being allowed to complete the contract. In the case of City of Portland v. Hoffman Construction Co., 286 Or 789 (1979) the court held that "evidence of the plaintiff's actual costs and the ordinary industry allowance for overhead and profit is relevent to the jury's determination of the reasonable value of the services and materials furnished. The following cases recognize that an allowance for profit may be included in the restitutionary award under measure recovery similar to that approved here. . . ".

I feel that the amount requested by the contractor for termination is very reasonable I do not believe it is necessary to audit the contractor's books to back this up. If the terms of the proposed termination agreement are satisfactory to you I would appreciate your forwarding the two copies of the agreement along with a copy of this memo to Al Harwood and ask him to have the contractor execute it and return it to you and as soon as you have executed it the payment can be made to the contractor.

JLS:sjb

8105

BEFORE THE PUBLIC CONTRACT REVIEW BOARD

OF THE STATE OF OREGON

In the matter of the exemption of )
the Department of Transportation )
for Filming the Construction of )
the I-205 Bridge Across the )
Columbia River. )

NOTICE OF INTENTION TO
ADOPT A PERMANENT RULE

On September 26, 1978, at 9:30 a.m., a public hearing will be held in Room 350 of the Capitol Building in Salem, Oregon, to consider the adoption by the Public Contract Review Board of a proposed permanent rule exempting the Department of Transportation from competitive bidding requirements on a contract to film construction of the I-205 Bridge across the Columbia River.

The proposed rule, if adopted, will be effective October 3, 1978.

The proposed rule provides as follows:

> The Department of Transportation is exempt from competitive bidding requirements to enter into a contract with Odyssey Productions, Inc. to film the construction of the I-205 Bridge across the Columbia River.

Interested persons may present their data, views or arguments, whether orally or in writing, at the hearing, or written testimony may be submitted prior to the hearing to the Public Contract Review Board, 100 State Office Building, Salem, Oregon 97310. Telephone: 378-4620 or 800-452-7813.

PUBLIC CONTRACT REVIEW BOARD

James A. Redden
Chairperson

Dated: September 1, 1978.

RECEIVED
DOT OPERATIONS
SEP 11 '78
REFER TO
FOR

| Info | Answ | R/D | D/R | Sign | Act | File |
|---|---|---|---|---|---|---|
|  |  |  |  |  |  |  |

8905

8

JAMES A. REDDEN
ATTORNEY GENERAL

DEPARTMENT OF JUSTICE
TRIAL DIVISION
~~100 State Office Building~~
Salem, Oregon 97310
Telephone: (503) 378-6313
211 Transportation Building

NOTED
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August 25, 1978

Public Contract Review Board
100 State Office Building
Salem, OR 97310

Dear Sirs:

The Department of Transportation, Highway Division hereby applies to the Public Contract Review Board for an exemption from competitive bidding for a public contract in accordance with ORS 279.015. The contract for which the exemption is sought is for the hiring of a contractor to film the construction of the I-205 bridge across the Columbia River. A general outline of proposed contract is attached as Exhibit A.

I believe it would be helpful to the Board in making a determination on the Department of Transportation's request for an exemption to be aware of the background of this matter. In July of 1977, a contract for the production of three films concerning the construction of the I-205 bridge was entered into between the State and a filmmaking company in Portland, Odyssey Productions. The contract was entered into after the Department of Transportation had selected Odyssey Productions in accordance with the department's consultant selections procedures. These procedures have been adopted as administrative rules by the department and have been approved by the PCRB. The department issued a prospectus and invited the submission of proposals from private filmmaking companies. A selection committee reviewed the proposals which were submitted by the private filmmaking companies and conducted interviews with representatives of the interested companies. The proposals submitted by the companies included estimated dollar costs to the State. Odyssey Productions submitted the second lowest estimated cost figure. However, since the proposals varied, in particular with regard to escalation costs, the dollar amounts were not necessarily directly comparable.

Following the selection of Odyssey Productions by the Department of Transportation, Photo Art, Inc., a film company which was not selected by the department and which had submitted the proposal with the lowest estimated dollar cost to the State filed a lawsuit against the Department of Transportation and Odyssey Productions. Photo-Art alleged that the contract should have been competitively bid in accordance with ORS chapter 279. For your information, I have attached as Exhibit B a copy of Photo-Art's complaint. The case was tried in Multnomah County Circuit Court. The court determined that the contract should have been competitively bid, and therefore the contract between the Department of Transportation and Odyssey Productions was invalid. However, the court order did provide that since substantial work had been done on the first film under the contract, Odyssey Productions could complete the first film in accordance with the contract. I have attached a copy of the court's order as Exhibit C.

The case has been appealed to the Oregon Court of Appeals since we do not believe that the decision of the Multnomah County Circuit Court was correct. I have attached as Exhibit D a copy of the brief submitted by the Department of Transportation which sets forth the reasons for the department's position that the decision of the Circuit Court is not correct.

During the period between now and the time a decision is issued by the Court of Appeals, the next phase of construction work, which is the subject of films 2 and 3, is scheduled to start. Failure to get footage of the early stages of the next phase of construction would be detrimental to the finished film.

The department does not believe selection of a film maker solely on the basis of the monetary amount of a bid submitted would be in the public interest. Therefore, the department is applying to the Public Contract Review Board for an exemption.

It is the department's position that granting this exemption will not encourage favoritism in the awarding of public contracts or substantially diminish competition for public contracts. If this exemption were granted, the department would select the consultant in accordance with the consultant selection procedure which was followed in the selection of the initial consultant. These rules, which have been approved by the Public Contract Review Board, in the opinion of the department, provide adequate protection against favoritism and yet allow the department to exercise its judgment in selecting the most qualified contractor.

It is also the position of the department that the selection of the contractor for films 2 and 3 through the consultants selection procedure could result in substantial cost savings to the Department of Transportation. If the department is allowed to select a film producer in accordance with the consultant selection procedure rather than on the basis of competitive bids, this will allow the department to control the quality of the product the State is to receive and to insure that the State is getting the most for its money. The filming, editing, scriptwriting and over all production of a movie is not a mechanical process. Rather, the production of a film is a creative, artistic process. The quality of final product will vary substantially depending on the skill and experience of the persons producing the film. It seems no more appropriate to select a film producer based solely on amount bid than it would be to select a sculptor based on competitive bids. True, the initial cost of employing the contractor may be low, but the final product may be worth little or nothing.

The selection of a filmmaker through the consultant selection procedure may also result in savings to the State because it will allow the department to evaluate the film production companies' ability to utilize the filming and other work which has already been done on this project. A more efficient use of existing materials will likely result in cost savings to the State.

Further, in providing people for liaison, support monitoring and advising the film maker, the department will have considerable expense. The expenses could vary greatly with different film makers dependent upon their experience in filming construction, location extent of facilities and attitude. The consultant selection procedure would permit an evaluation of these potential cost affecting factors.

If you wish additional information, please feel free to contact me.

Sincerely,

Mary Deits
Mary Deits
Assistant Attorney General

MD:sjb
attachments
cc: Jack Sollis
Jim Russell
Ed Hunter
Al Harwood

EXHIBIT A

Contract requirements for films covering substructure construction and overall construction of the I-205 crossing of the Columbia River.

Details of the Agreement would have to be worked out with the film maker selected

## WORK TO BE DONE

Produce two 16 mm sound films, one covering construction of the super structure of the I-205 Bridge over the Columbia River 20 minutes in length, and a second film covering overall construction 45 minutes in length.

### Content
### Superstructure Film

The 20 minute super structure film is to be a technically oriented continuation of the film presently being made of the substructure construction. The film is to present in detail the completion of the pier construction and construction of the superstructure.

Overall Construction Film - This film is to be for viewing by general audiences made up of lay people and professionals. It is to cover all phases of construction of the bridge, background, history, and importance of the facility to the community. The film is to include interesting and unusual aspects of construction of the South Channel structure and Washington approach, as well as the North Channel section.

## SPECIFIC REQUIREMENTS

On Site Shooting Days - For adequate coverage a minimum of 20 full days and 10 partial days of on site shooting will be required for the superstructure film.

For the film covering overall construction, footage shot for the superstructure, substructure, and by OSHD photographers shall be used. In addition 20 full days and 10 partial days of filming are considered as a minimum to provide the wider coverage desired, background, construction of Washington approaches, and South Channel section and community benefits.

A full shooting day will be when the crew is on the filming site for more than two hours or when more than 300 feet of film is exposed.

A partial day will be when the crew is on the shooting site less than 2 hours total for the day and less than 300 feet of film is exposed. Two partial days will be considered as one full day. Each day either underwater photographs or aerial photography is performed will be considered as a shooting day even though no other film is exposed.

Sound - Studio sounds, narration, background music - On site sounds of construction and interviews. Sound and picture to be synchronized.

Graphics - Standard title, credit, etc., by filmmaker, Special graphics by the State.

Music - Licensed AACAP

Narration - Professional selected by filmmaker - approved by the State.

Script - By filmmaker. Technical assistance and approval by the State.

Ownership of exposed film - All exposed film will be the exclusive property of the State of Oregon. All work prints and exposed original footage shall be delivered to the State prior to final payment being made.

Quantity of Finished Film - Six prints of each film is to be delivered to the State.

Equipment - Film maker shall provide all equipment for completing the film.

Progress payment will be made each month filming is performed. Payment will be as follows:

5% of lump sum amount for each film be paid the first month filming is performed.

3% of lump sum amount for each film will be paid for each full day of shooting, and 1 1/2% for each half day shooting.

Aerial photography will be paid for each month at the rate established herein.

Underwater photography will be paid for each month at the rate established herein.

Balance of the lump sum for each film will be paid when film is delivered.

Filming ordered in addition that required by the Agreement will be paid at the rate established herein.

Personnel - Filming, sound recording, editing, scripting, and all other phases of the production of the films shall be done by professionals experienced in their field. The film maker shall be prepared to present to the State a list of personnel and firms which will handle each phase of the film production and shall be able to present examples of their work if requested by the State.

Transportation - Transportation to and from shooting locations shall be provided by the film maker. Transportation on the construction project will be provided by the State.

Shooting Schedule - A schedule for shooting will be developed jointly by the film maker and the State. Each day of shooting is to be approved by the State in advance.

Aerial Photography - The film maker will provide necessary equipment, personnel, and aircraft for aerial photography requested by the State.

Underwater Photography - The film maker will take underwater shots as requested by the State. He will provide all equipment and personnel necessary.

Exposed Film Furnished by the State

The state will furnish to the film maker a work print of all film shot for the substructure and film shot by State photographers for possible use in the 45 minute film. Color negative, original, or copy of scenes selected from the work prints furnished by the State for inclusion in the finished film will be furnished by the State at no cost to the film maker.

Processing - Processing and necessary work prints for producing the films are the film makers responsibility.

## GENERAL PROVISIONS

I The film maker will save and hold harmless the State of Oregon

II Provision required by law made a part of the Agreement.

III Film maker will comply with Federal and State regulations and statutes.

IV Film maker will maintain records and make available to the State if requested.

V Shall not assign the Agreement

VI Succession

VII Termination

VIII Effective date

IX Total amount to be paid shall not exceed $_______________

Certification by requesting agency

Payment - Lump sum payment for each film is full payment for completing each film including but not limited to processing providing materials, personnel, and equipment listed under "specific requirements" except additional payment will be made at the rate established herein for aerial and underwater photography and for filming days in excess of the number of days listed under "specific requirements."

Filming required by the State in excess of the number of days established herein for each film will be paid for at the amount established herein for each additional day and for each foot of film properly exposed on that day. The amount established is to cover payment for processing and work prints and for items listed under "specific requirements" except underwater and aerial photography.

Amount established for aerial and underwater photography will be paid in addition to the lump sum paid for each film. Time will be recorded to the nearest 1/4 hour for each hour in the air or under water. Except a minimum of one hour will be allowed any day underwater photography is performed. A minimum of 1/2 hour will be allowed for each day aerial photography is performed.

Pay Item

| | |
|---|---|
| 20 minute Superstructure film | Lump Sum____________________ |
| 45 minute comprehensive film | Lump Sum ____________________ |
| Aerial Photography | Per Hour____________________ |
| Underwater Photography | Per Hour____________________ |
| Filming days in excess of the 20 full days and 10 partial days required | |
| Full Day | Each ____________________ |
| Partial Day | Each ____________________ |
| Exposed Film | Lin. Ft.____________________ |

EXHIBIT B

IN THE CIRCUIT COURT OF THE STATE OF OREGON

FOR THE COUNTY OF MULTNOMAH

PHOTO-ART COMMERCIAL STUDIOS, INC., an Oregon corporation,

Plaintiff,

vs.

E. S. HUNTER, Deputy State Highway Engineer; R. L. SCHROEDER, Assistant Highway Engineer; L. W. RULIEN, Program Management Engineer; E. L. HARDT, Engineer; W. J. HART, Bridge Engineer; GEORGE H. BELL, Special Assistant for Public Affairs, Department of Transportation, State of Oregon; all of whom are employees of the State of Oregon; and CLAY MYERS, in his official capacity as State Treasurer of the State of Oregon; and ODYSSEY PRODUCTIONS, INC., an Oregon corporation,

Defendants.

No. A7804-06692

COMPLAINT FOR DECLARATORY JUDGMENT AND INJUNCTIVE RELIEF

COMES NOW plaintiff, and for a First Cause of Action against defendants, and each of them, alleges as follows:

I.

This is a proceeding for declaratory relief under ORS Chapter 28 for the purpose of determining a question in actual controversy between the parties hereto.

II.

That all times hereinafter mentioned, plaintiff PHOTO-ART COMMERCIAL STUDIOS, INC., was and is now a corporation duly organized and existing under the laws of the State of Oregon; that plaintiff is a taxpayer of the State of Oregon, and is financially affected by the transaction hereinafter set forth.

MICHAEL J. WALSH
615 Pacific Building
Portland, Oregon 97204
Telephone (503) 224-5200

III.

That at all times hereinafter mentioned, defendants E. S. Hunter, Deputy State Highway Engineer; R. L. Schroeder, Assistant State Highway Engineer; L. W. Rulien, Program Management Engineer; E. L. Hardt, Region I Engineer; W. J. Hart, Bridge Engineer; George H. Bell, Department of Transportation, Special Assistant for Public Affairs, were members of the Consultant Selection Committee of the Oregon Department of Transportation whose purpose was to select a filmmaking company to film construction of the I-205 Columbia River Bridge Project. These defendants shall herein be referred as defendant committee.

IV.

At all times hereinafter mentioned, defendant Odyssey Productions, Inc., was and is now a corporation duly organized and existing under the laws of the State of Oregon.

V.

In or about May 1977, defendant committee issued a prospectus inviting competitive bids on a filmmaking contract for the production of 16 mm. sound movie films recording the various stages of construction of the I-205 Columbia River Bridge Project.

VI.

In or about June 1977, plaintiff submitted a bid for $53,668 pursuant to the prospectus and in accordance with the requirements and specifications set forth therein, including a presentation of plaintiff's qualifications and ability to perform the contract. Four other bids were submitted for the filmmaking contract, to-wit:

| | |
|---|---|
| Defendant Odyssey Productions, Inc. | $ 97,938 |
| Video/Tape | 155,945 |
| Tele-West Associates | 192,062 |
| Video Productions | 219,700. |

Thereafter, defendant committee accepted the bid of defendant Odyssey Productions, Inc., for $97,938 and awarded the filmmaking contract to that company, though such bid was not the lowest responsible bid submitted.

VII.

Plaintiff contends the filmmaking contract is a public contract subject to the competitive bidding procedures of ORS Chapter 279. That in all respects, plaintiff's bid was more favorable than the other bids, and plaintiff was the lowest responsible bidder, taking into consideration price, quality and probability of performance. Defendants contend the contract is not a public contract.

VIII.

In accepting the higher bid and awarding a contract based thereon, defendant committee acted in violation of the provisions of ORS 279.029, requiring that a public contract be awarded to the lowest responsible bidder, and in total disregard of its duty to the taxpayers of the State of Oregon.

IX.

Defendant committee's action in awarding the filmmaking contract to defendant Odyssey Productions was an arbitrary, capricious and wrongful abuse of official discretion and contrary to public interests, and any contract based thereon is illegal and void and the payment of any funds of the State of Oregon under any such contract is a waste of public funds.

X.

That defendant Clay Myers, acting in his official capacity as State Treasurer of the State of Oregon is charged by law to pay out of the State Treasury all sums authorized by law to be so paid. That this defendant will, unless restrained, pay out sums of money illegally from the State Treasury to defendant Odyssey Productions to the detriment and damage of plaintiff and other taxpayers of the State of Oregon.

XI.

That plaintiff has no adequate legal remedy for the relief sought herein and will suffer immediate, substantial and irreparable damage unless said award is set aside in that defendant Odyssey Productions' bid was 82% higher than plaintiff's bid, thus increasing plaintiff's burden of taxation through waste of public funds.

For a Second Cause of Action against defendants, and each of them, plaintiff alleges as follows:

I.

Plaintiff re-alleges and incorporates herein by reference as though set forth in full the allegations contained in paragraphs I, II, III, IV, V, VI, X and XI of its first cause of action.

II.

That defendant Odyssey Productions made representations

MICHAEL J. WALSH
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Telephone (503) 224-5200

to defendant committee in the presentation of its qualifications and ability to perform the filmmaking contract in that it represented it had underwater filming capabilities and personnel to perform such filming when in fact it did not; and that it had certain employees, when in fact they were no longer employed by it. These representations were material.

III.

That defendant committee relied upon these representations in accepting the bid of defendant Odyssey Productions and awarding a filmmaking contract based thereon; the defendant committee has refused to review its decision or investigate allegations of material misrepresentations; that defendant committee's actions were and are an arbitrary, capricious and wrongful abuse of official discretion and not in the public interests, and the payment of any funds of the State of Oregon under such a contract will be a waste of public funds and an injury to the State and will cause irreparable damage to plaintiff and all other taxpayers of the State of Oregon.

WHEREFORE, plaintiff prays for the following relief:

(1) For a declaratory judgment on its first cause of action declaring that the filmmaking contract for the production of 16 mm. sound movie films recording the various stages of construction of the I-205 Columbia River Bridge Project is a public contract within the provisions of ORS Chapter 279 which must be awarded to the lowest responsible bidder; declaring that the filmmaking contract with defendant Odyssey Productions

is illegal and void; and declaring that payment of any funds of this State under said contract is a waste of public funds and illegal.

(2) For a declaratory judgment on its second cause of action, declaring that the action of defendant committee in awarding the filmmaking contract to defendant Odyssey Productions and refusing to investigate allegations of material misrepresentations constituted an arbitrary and wrongful abuse of official discretion; declaring that the filmmaking contract entered into pursuant thereto is illegal and void; and declaring that payment of any funds of this State under said contract is a waste of public funds and illegal.

(3) For a permanent injunction setting aside the filmmaking contract with defendant Odyssey Productions and enjoining and restraining the parties from proceeding with or carrying out the contract; and further, enjoining and restraining defendant Clay Myers from paying monies on the contract.

(4) For an award to plaintiff of its costs and disbursements incurred herein.

(5) For such other and further relief as the nature of the case may require and the court may deem just and proper.

Michael J. Walsh

Michael J. Walsh
Attorney for Plaintiff

Verification:

State of Oregon, County of Multnomah, ss.

I, John F. Patterson, being first duly sworn, say that I am the President of Photo-Art Commercial Studios, Inc., plaintiff in the within action, and that the foregoing Complaint for Declaratory Judgment and Injunctive Relief is true as I verily believe.

x

Subscribed and sworn to before me this 20 day of April, 1978.

Michael J. Walsh
Notary Public for Oregon
My Commission expires: 10-17-80

True Copy:

I hereby certify that the foregoing copy of Complaint for Declaratory Judgment and Injunctive Relief is a correct copy of the original.

Dated: April 20, 197.

Michael J. Walsh
Attorney for Plaintiff

MICHAEL J. WALSH
615 Pacific Building
Portland, Oregon 97204
Telephone (503) 224-5200

EXHIBIT C

11

IN THE CIRCUIT COURT OF THE STATE OF OREGON

FOR THE COUNTY OF MULTNOMAH

PHOTO-ART COMMERCIAL STUDIOS, INC., an Oregon corporation,

Plaintiff,

vs.

E. S. HUNTER, et al,

Defendants.

BOOK 1339 PAGE 1329

No. A 7804 06692

FINDINGS OF FACT, CONCLUSIONS OF LAW, JUDGMENT

THIS MATTER coming on for trial on Tuesday, June 20, 1978, before The Honorable William Dale, based upon plaintiff's complaint for declaratory judgment and permanent injunctive relief, and the defendants, E. S. Hunter, R. L. Schroeder, L. W. Rulien, E. L. Hardt, W. J. Hart and George H. Bell of the State of Oregon Highway Department; and Clay Myers of the State of Oregon Treasury Department, appearing by and through their attorney, Mary Deits, Deputy Attorney General, State of Oregon, and the defendant, Odyssey Productions, Inc., an Oregon corporation, having been adjudicated in default on June 7, 1978 for want of appearance, and the plaintiff appearing by and through its attorney, Michael J. Walsh, and the court having heard testimony and received in evidence exhibits introduced by the respective parties and having received legal memorandum and heard oral arguments of counsel, and being fully advised in the premises, enters the following:

## FINDINGS OF FACT

----------

I.

Plaintiff has standing to bring the within suit for declaratory judgment and injunctive relief, and this court has jurisdiction to determine this matter. A justiciable controversy exists between the parties to this proceeding.

II.

The filmmaking contract, entered into on or about July 19, 1977, by and between the State of Oregon and Odyssey Productions, Inc., an Oregon corporation, for the production of three films recording construction of the I-205 Columbia River Bridge, was and is a "public contract" within the meaning of ORS Chapter 279, and as such required competitive bidding procedures to be followed.

III.

Competitive bidding procedures were not properly followed, as required by ORS Ch. 279, in awarding the filmmaking contract to Odyssey Productions, Inc. Consequently, the contract is illegal and void.

IV.

At the time it submitted its proposal on June 1, 1977, Odyssey Productions, Inc., failed to inform the defendants above-named and the Department of Transportation of the State of Oregon, that certain of its personnel were no longer employed by Odyssey Productions, including Eugene Ellis.

V.

Based on the understanding that Odyssey Productions has already completed a rough draft of the script for Film I and shot film footage, it is in the interest of the taxpayers of the State of Oregon for Odyssey Productions, Inc., to complete Film I, thus preventing waste of work already done.

## CONCLUSIONS OF LAW

On plaintiff's first cause of action, the filmmaking contract for the production of three films recording the various stages of construction on the I-205 Columbia River Bridge, was and is a "public contract" within the meaning of ORS 279.011(1) and not one for personal services. The filmmaking contract should have been competitively bid in accordance with the bidding procedures set forth in ORS Ch. 279. These procedures were not followed and for this reason the contract is invalid and must be re-bid.

On Plaintiff's second cause of action, plaintiff has no basis for relief since it is up to the State, as contracting party, to rescind the contract or claim damages thereunder for the misrepresentations made by Odyssey Productions to the State. The action of the selection committee in awarding the filmmaking contract to Odyssey Productions, Inc., was not an arbitrary abuse of discretion.

## ORDER

That the State of Oregon and Odyssey Productions, Inc., their agents, servants, employees and attorneys, and all persons acting in aid of or in conjunction therewith, be and hereby are permanently enjoined and restrained from proceeding with the production of Films II and III (Phase II and III) as provided for in the contract for filming construction of the I-205 bridge across the Columbia River. The contract as awarded was invalid and void and a new contract for the production of Films II and III (Phase II and III) shall be let upon competitive bid in accordance with the procedures set forth in ORS Ch. 279.

DATED this 30th day of June, 1978.
nunc pro tunc, June 20, 1978.

William M. Dale
Circuit Judge

EXHIBIT D

IN THE CIRCUIT COURT OF THE STATE OF OREGON

FOR THE COUNTY OF MULTNOMAH
Case No. A7804-06692

PHOTO-ART COMMERCIAL STUDIOS, )
INC., an Oregon Corporation, )
)
Plaintiff, )
)
v. )
)
E. S. HUNTER, et al, )
)
Defendants. )

## TRIAL BRIEF

Plaintiffs have challenged the selection of Odyssey Productions, Inc., by the Oregon Department of Transportation to carry out a filmmaking contract for the filming of the construction of the I-205, Columbia River Bridge project. Odyssey Productions was selected as a consultant in accordance with the consultant selection procedure adopted by the Oregon Department of Transportation, Highway Division.

Plaintiffs contend that the contract is a "public contract" as used in ORS chapter 279 and therefore must be competitively bid. It is defendant's position that the contract is a personal services contract and the selection of Odyssey Productions in accordance with the adopted consultant selection procedure of the Department of Transportation was proper.

ORS 279.015 requires that all public contracts shall be based upon competitive bids. ORS 279.011 (1) defines a "public contract" as:

> " . . . any purchase, lease or sale by a public agency of

Department of Justice
100 State Office Building
Salem, Oregon 97310
Phone 378-4400

> personal property, public improvements or services other than agreements which are exclusively for personal service."

ORS 279.051 governs the letting of personal service contracts. That statute provides:

> "(1) Public agencies may enter into contracts for personal services. The provisions of this section do not relieve the agency of the duty to comply with ORS 291.021 or applicable city or county charter provisions. Each public agency shall create procedures for the screening and selection of persons to perform personal services.
>
> (2) The board, either upon complaint or on its own motion, may investigate the screening and selection procedures of any state agency as defined in subsection (7) of ORS 291.002. The board may, for good cause shown, order a state agency to cease and desist and to adopt and follow screening and selection procedures which may be prescribed by the board."

The critical question in this case is what contracts are included within the term "exclusively personal service" as used in ORS 279.011 and "personal services" as used in ORS 279.051. It is a general principle of statutory construction that in construing an ambiguous statute, it is the function of the court to construe the language of the statute so as to give effect to the intent of the legislature. ORS 174.020; State ex rel Cox, v. Wilson 277 Or 747, 562 P2d 172 (1977); State of Oregon v. Aresenio, 21 Or App 114, 533 P2d 1397 (1975). In determining the intent of the legislature the court should consider the object to be accomplished by the legislation. James v. Carnation Company 278, Or 65, 562 P2d 1192 (1977); Curly's Dairy Inc. v. State Department of Agriculture, 244 Or 15, 415 P2d 740 (1966).

The language of both ORS 279.011 and 279.051 was adopted in 1975 as a part of an extensive revision of the public contracting law. Oregon

Laws 1975, chapter 771. Testimony before the House Judiciary Committee of the 1975 Legislature and the Senate Judiciary Committee of the 1975 Legislature indicates that the public contracting law adopted in 1975 was not intended to apply to contracts such as the filmmaking contract in the present case. Lee Johnson, was a member of the advisory committee which drafted the legislation and in fact was one of the principle drafters of the legislation. In discussing Section 27 of House Bill 2339, which became ORS chapter 279, Lee Johnson makes the following comments:

> "Section 27 deals with the problem, the thorny problem of personal service contracts contracting exclusively for personal services. The committee was unanimous that they didn't feel that personal service contracts should be subject to the same rules as other government contracting because it is obvious that the subjective judgment to hire an architect, hire a lawyer or any other type of professional judgment. (sic) But because of the public discussion over the possible abuses in this area, section 27 does provide that the board may upon its own motion or upon complaint investigate the screening or selection procedures used by any government agency." Minutes of the House Judiciary Committee, March 25, 1975. [Section 27 is now codified as ORS 279.051]

At a later session of the House Judiciary Committee Lee Johnson was asked a question as to how the proposed law would affect architects employed by the State of Oregon. In response to that question he stated:

> "Architectual services are personal services which basically are not subject to Chapter 279 and are not subject to competitive bidding . . ." Minutes of the House Judiciary Committee, April 7, 1975.

Finally, in a discussion before the Senate Judiciary Committee concerning the application of the law to personal services contracts, Mr. Johnson stated:

> ". . . it is an area where obviously competitive bidding is

> not appropriate. It is an area where subjective judgment is always going to play a major role. At the same time there should be come kind of review procedure and that is the intent of Section 27." Minutes of the Senate Judiciary Committee, June 3, 1975.

There is substantial case law supporting the principle that competitive bidding statutes do not apply to certain contracts for personal services, particularly those of a technical or professional nature. As stated in 64 AM. JUR. 2d Public Works and Contracts S43 (1972).

> "Constitutional and statutory provisions requiring public contracts to be let upon competitive bidding do not apply to certain contracts for personal services, particularly those of a technical or professional nature, such as the services of attorneys and physicians, or to contracts requiring special training and skill such as contracts calling for services of architects, engineers, surveyors, accountants and auditors, construction supervisors and superintendents, real estate appraisers or brokers, title abstracters or preparers of real-estate records, insurance brokers, pawnbrokers or financial advisors, artists, actors and musicians or other specialists or skilled people and such contracts may be let without bids . . ." MCQUILLIN, MUNICIPAL CORPORATIONS S29.35 (1966). Annot. 15 ALR 3d 733 (1967); Aqua-Tech, Inc., v. Comolink Protection and Rehibilitation District, 71 Wis. 2d 541, 239 N.W. 2d 25 (1976); W.M. Parker v. Panama City 151 So. 2d 469 (1963); Foss v. Spitznegel 97 N.W. 2d 856 (1959); Hordin v. City of Cleveland, 62 N.E. 2d 889 (1945); Stephens County v. J.N. McCammon, Inc. 52 SW 2d 53 (1932).

The Supreme Court of South Dakota in Foss, supra considered the issue of whether contracts with professionals were subject to the competitive bidding law. In that case, an action was brought by plaintiff on behalf of the taxpayers of the city challenging the award of a contract to an architect to prepare plans for a proposed civic arena or auditorium. Plaintiffs alleged that the city was required to advertise and bid the contract. Plaintiffs relied on a South Dakota statute which stated:

> "All contracts with any public corporation, whether for the construction of public improvements or contracts for the purchase of materials, supplies or equipment, when such contracts involve an expenditure equal to or in excess of $1,000 must be let to the lowest responsible bidder." SDC Supp. 65.0701-2.

The court concluded that the South Dakota law requiring that competitive bidding was not applicable to the employment of an architect. In reaching this conclusion, the court relied upon the reasoning of the Texas Supreme Court set forth in Stephens County, supra. In the Stephens County case which also involved the letting of a contract for an architect the court said:

> "The contract called for skill and experience on the part of the appellees. They were required to prepare suitable plans for the work to be done in the construction of a jail and perhaps a new courthouse. The county was vitally interested in procuring the services of a skilled and experienced person or concern to draw up the necessary plans and supervise the work while going on. To hold that contracts for this kind of work must be let the lowest bidder would inevitably result in the county being placed in a position which would require it to accept the services of incompetent persons. Naturally one who has no skill, experience or technical knowledge, could underbid one who possesses the skill, technical knowledge, and experience, to perform this kind of service. In other words, to construe the statute as contended would place a premium upon incompetency and produce an unfortunate situation. To illustrate, could it be seriously contended that, if a county desiring the services of a skilled and competent attorney to represent the county in some important piece of litigation, involving a large sum of money, that the county should, before letting the contract, submit it to competitive bids, and then be required to hire the person making the lowest bid therefore? We think not. To do and perform the work for which appellee was employed required technical skill and experience of a high degree, and it is plain that the Legislature never intended that such services should be awarded upon competitive bids." Stephens County, supra at 55.

The same issue was considered by the District Court of Florida in Parker, supra. In that case an action was brought by plaintiff as a taxpayer challenging the letting of a contract for the reevaluation of all taxable and real and personal property in the city. The contract provided that the consideration paid for the contract should cover ". . . all services, labor, appraisals, material, transportation, use of equipment, printing, records, and other costs and expenses incident to the complete reevaluation project contemplated by the contract." Parker, supra at 471 One of plaintiff's contentions was that the contract was subject to the competitive bidding law and was not let to the lowest bidder. The statute upon which plaintiff relies is section 4 of chapter 59-1711, Laws of Florida, which reads:

> "All purchases made by the city and all contracts entered into by the city in the amount of one thousand dollars ($1,000) or more, shall be on competitive bids except in cases of emergency affecting the public health and welfare and except purchases of electric current, telephone service, natural gas and water, anything in this charter to the contrary notwithstanding."

The court in Parker concluded that the contract was not subject to the competitive bidding statute. The court stated:

> "It is also the general rule that contracts for services requiring special skills or training, such as the professions and locations of accountants, actors, architects, artists, attorneys, auditors and directors, engineers, court stenographers, clerks, interior decorators, musicians and surveyors, are not required to be let on bids under a statutory or constitutional provision that contracts with the state or municipality must not be entered without first advertising for bids." Parker, supra at 472.

In Aqua-Tech, supra the Supreme Court of Wisconsin adopted the principle that the general test to be applied in determining whether a contract is exempt from bidding requirements is whether the nature of the work called for makes it impossible or impractical to draw specifications satisfactorily to permit competitive bidding. In that case, which involved the letting of the contract for a feasibility study project to be conducted by a lake protection district, the court concluded that these were not the type of services which were ordinarily held to warrant an exemption from statutory bid requirements.

The present case involves the letting of a contract for production of a film. This type of work clearly falls within the type of contracts requiring professional skills which the courts have exempted from competitive bidding statutes. Further, the contract is not of a nature that would allow detailed specifications to be drawn and bid upon. This was indicated by the testimony of Mr. Ed Hardt before this court on May 31, 1978 and by the testimony of representative of Video Productions before this court on June 1, 1978. The fact that as the evidence shows, the proposals in this case ranged from $53,668 to $219,700, in itself, indicates that competitive bidding would not be appropriate for this contract.

It is defendants position that the competitive bidding requirements of ORS chapter 279 should not apply to the filmmaking contract which is the subject of this dispute. As indicated by the testimony of Lee Johnson cited above it was not intended that the competitive bidding procedures of the 1975 public contracting law should apply to personal services contracts. The 1975 public contracting law included a specific provision, which is now ORS 279.051 governing contracts for personal services. This provision gives public agencies the authority to enter into personal service contracts and provides for review of the procedures used in selecting consultants for personal services by the Public Contract Review Board.

The fact that a contract which is essentially for personal services also provides payment for supplies incidental to a contract should not totally change the selection procedure required by ORS chapter 279. It is difficult to conceive of a personal services contract where supplies are not involved or a product in some form is not produced. An architect in almost all cases utilize paper and supplies to develop a design which becomes the property of the person requesting the architect's services. To conclude that a contract for the services of an architect which does not provide for the payment of any of an architects supplies or for the payment for the final design may be let in accordance with the personal services consultant selection procedures of a public agency but that if the contract provides for the payment for any supplies the contract must be competitively bid, is clearly unreasonable. In the present case it would mean that because the contract provides for a small payment for film out of a $97,000 contract, the contract must be competitively bid.

The Public Contract Review Board apparently agrees with the position that payment for supplies incidental to a personal services contract does not take the contract outside the personal services exemption from the competitive bidding law. After the adoption of the 1975 public contracting law, the Public Contract Review Board adopted an administrative rule which includes the following definition:

> "(2) Contracts which are exclusively for personal services. Such services may include incidental materials such as written reports, architectural or engineering renderings and similar supplemental materials." OAR 127.10-010.

It is a general principle of statutory construction that a statute should, if possible, be construed so as to avoid absurd or unreasonable results. James supra. Spaght v. State of Oregon by and through its Department of Transportation, Highway Division, 29 Or App 681 564 P2d 1092 (1977). As stated by the Oregon Supreme Court in State v. Irving, 268 Or 204, 520 P2d 354 (1974):

> "When . . . a literal application of the language produces an absurd or unreasonable result, it is the duty of the court to construe the act, if possible, so that it is a reasonable and workable law and not inconsistent with the general policy of the Legislature." Citing Fox v. Galloway, 174 Or 339, 347, 148 P2d 922 (1944).

The use of the term "exclusively personal services" does present some confusion. If read literally, this could result in the interpretation that personal services contract selection procedure would only apply to a personal service contract in which no supplies are paid for or no physical product results from the services. Such an interpretation would render the provisions relating to personal services contracts virtually meaningless. It is defendant's position that the reason that the term "exclusively" was used in the statute was to insure that the authority given to public agencies to let personal services contract was not used to circumvent the competitive bidding law. For example, to prevent an agency from treating the contract as a personal services contract when the personal services were only an incidental part of the contract.

In summary, it is defendant's contention that the competitive bidding requirements of ORS chapter 279 were not intended to apply to a personal services contract such as the contract which is the subject of this dispute. Defendant's respectfully request that the court find that the contract was properly let in accordance with the consultant selection procedure of the Department of Transportation.

Respectfully submitted,

JAMES A. REDDEN
Attorney General

Mary Deits
Mary Deits
Assistant Attorney General

# CERTIFICATE OF MAILING

I hereby certify that I served the foregoing Trial Brief on:

Michael J. Walsh
Attorney at Law
615 Pacific Building
520 S.W. Yamhill Street
Portland, Oregon 97204

by mailing to said attorney correct copies thereof, certified by me as such, contained in a sealed envelope, with postage paid, addressed to said attorney at the address above indicated, known to me to be his last known address, and deposited in the Post Office at Portland, Oregon, on the 15th day of June, 1978. Between the said Post Office and the address to which said copies were mailed there is a regular communication by U. S. Mail.

DATED: June 15, 1978.

Mary Deits
Mary Deits

## DEPARTMENT OF JUSTICE

NOTED
E. S. HUNTER

**Memorandum**

TO: Ed Hunter, Manager
Office of Technical Services

DATE: July 18, 1978

RECEIVED
TECHNICAL SERVICES
JUL 19 '78
REFER TO
FOR
File
Act
Sign
O/R
R/D
Invest
Info

FROM: Mary Deits
Assistant Attorney General

SUBJECT: Film Contract I-205 Bridge

As you are aware, in the case of Photo-Art v. Hunter, the court decided that the contract was a public contract and should have been competitively bid. Consequently the court declared the contract between the state and Odyssey Productions was illegal and void. However, the court did determine that since a substantial portion of the first film had been completed, Odyssey Productions would be allowed to complete the production of the first film in accordance with the contract.

With regard to the first film, Odyssey Productions may proceed with the completion of the production of the first film. As provided by the contract, it is possible that this may not be completed until late 1979. Any payment made by the state to Odyssey Productions should be only for work which may reasonably be included within the framework of the first film. If representatives of the Highway Division or Odyssey Productions have any questions as to whether particular items are permissible expenses within the scope of the first film, the Legal Section should be consulted.

With regard to the completion of the contract and the production of films two and three, there are a number of alternative courses of action that the Highway Division may take. In my opinion, the alternatives are as follows:

1. The decision of the Circuit Court may be appealed to the Oregon Court of Appeals. In my opinion, the decision of the Circuit Court was not legally correct. I believe that it is very likely that the Court of Appeals will reverse the decision of the Circuit Court and hold that the contract with Odyssey Productions is valid. I have discussed this case with a number of individuals who are knowledgeable in the area of public contracts and all of these individuals agree with my evaluation. The problem with the appeal is that it will probably take at least a year for the Court of Appeals to issue a decision.

   Regardless of what other action the Highway Division takes, I would recommend that an appeal be filed. I believe that the Circuit Court's decision is wrong and creates confusion as to how various contracts of the Highway Division should be let.

2. A second course of action which may be taken by the Highway Division is to apply to the Public Contract Review Board for an exemption from the competitive bidding requirements of Oregon law. The Public Contract Review Board has authority to issue exemptions if an agency is able to demonstrate that:

> "(a) It is unlikely that such exemption will encourage favoritism in the awarding of public contracts or substantially diminish competition for public contracts; and
>
> "(b) The awarding of public contracts pursuant to the exemption will result in substantial cost savings to the public contracting agency. In making such finding, the board may consider the type, cost, amount of the contract, number of persons available to bid and such other factors the board may deem appropriate."
>
> ORS 279.015(2)

I have discussed the possibility of applying for an exemption with the Public Contract Review Board with Jim Russell, the Assistant Attorney General who represents the Public Contract Review Board. In his opinion, the Board has the authority to grant such an exemption for the film contract. He did state that there may be some difficulty in getting the Board to grant an exemption in this case since the Board would be aware that if an exemption were granted, Photo-Art could file a legal challenge to the Board's action. However, it was his opinion, in which I concur, that the Highway Division would not lose anything applying for an exemption.

3. Assuming that the Public Contract Review Board does not grant an exemption, the Highway Division could let the contract on competitive bids. Of course in order to do this the Highway Division would have to compile specifications which somehow quantified the film contract so that it could be competitively bid.

In my opinion, the advantages of bidding the contract are as follows:

a. There is no possibility of further legal challenge.

b. By bidding the contract immediately the production of the second and third films may get under way in the near future.

In my opinion, the disadvantages of this alternative are as follows:

a. It would be difficult to control the quality of the contractor. It is very likely that the most qualified film producer will not be selected.

b. If the contract is competitively bid, there is a strong likelihood that Odyssey Productions will not be selected. Therefore, there would be problems associated with using an entirely different film producer. For example, it would be necessary to familiarize the new film producer with the project and to develop a working relationship with the producer.

c. If the case is appealed to the Court of Appeals and the Court of Appeals holds that the contract was properly let, problems could be presented if the state has selected a different consultant than Odyssey. For example, if a new contractor has been selected, the state may have to or may wish to change back to Odyssey Productions. why

4. The Highway Division could alter the contract so that it does not include any payments by the state to the contractor for supplies, in other words the contract would be "exclusively for personal services". All film and other supplies would be purchased by the state and supplied to the contractor.

In my opinion, the advantages of this alternative are as follows:

a. Assuming that Odyssey Productions is selected, the continuity of the contract could be maintained. This would likely result in lower costs to the state since the costs of transition from one contractor to another would be avoided. Also, maintaining the continuity of the contract would be likely to result in a higher quality product.

b. Assuming Odyssey Productions is selected, if the matter is appealed and the court upholds the validity of the contract, there will be no problem in having to change back to Odyssey Productions.

In my opinion, the disadvantages of this alternative are as follows:

a. Even though the contract would be solely for personal services, it would be necessary to go through the consultant's selection procedure. Assuming that Odyssey Productions is selected in accordance with this procedure, it may appear to be a sham devised to allow the state to select Odyssey Productions. why.

b. If this alternative is chosen, Photo-Art may file a legal challenge to the state's action, thereby again delaying the filming.

5. The Highway Division could hire a consultant on a daily basis to film those phases of the project which take place from now until the Court of Appeals issues a decision. If this approach is followed, the consultant would be hired only to film the project. The state would have to furnish all supplies such as film.

The advantages of this approach are as follows:

a. Again the consultant would have to be selected in accordance with the consultant's selection procedure. Therefore, it would be possible to select Odyssey Productions and maintain the continuity of the film.

b. If the contract is held to be valid by the Court of Appeals, there is no problem with having to switch back to Odyssey Productions.

In my opinion, the disadvantages of this approach are as follows:

a. If the Court of Appeals were to determine that the contract with Odyssey Productions was invalid, we would be a year farther along with no contract.

b. The Highway Division could be subject to criticism in that it may appear this is being done merely to maintain the contract with Odyssey.

6. The Highway Division could use its own employees to make a film record of necessary phases of the construction during the time period between now and the time the Court of Appeals issues a decision.

In my opinion, the advantages of this approach are:

a. Costs to the state would be reduced.

b. If the Court of Appeals upholds the contract, the continuity of the contract may be maintained in that a separate contractor has not been hired. Odyssey could continue where they left off.

In my opinion, the disadvantages of such approach are as follows:

a. This might detract from the quality of the final product.

b. It is possible that if the Court of Appeals decides against the state, we will be a year farther along with no contract.

I believe that it would be worthwhile to get together to discuss the above alternatives.

MD:hg
cc - Al Harwood
Jack Sollis
Bob Ellison

8905

9

xxxxxxxxxxxxxxxxx

211 Transportation Bldg.

March 16, 1978

Mr. Michael J. Walsh
Attorney at Law
615 Pacific Building
Portland, OR 97204

Re: Production of 16 mm. Sound Movie Film - Columbia River (I-205) Bridge

Dear Mr. Walsh:

Your letter of March 2, 1978, addressed to Mr. George Bell, has been referred to me for reply. A review of the file does not indicate a position other than that set forth in a letter dated February 21, 1978, from Mr. E. S. Hunter, Technical Services Engineer addressed to Mr. Douglas L. Fellman. A copy of this letter is enclosed.

Sincerely yours,

Jack L. Sollis
Assistant Attorney General

JLS:sb;hg
Enclosure

bc: George Bell
E. S. Hunter
H. S. Coulter

x

LAW OFFICES OF
MICHAEL J. WALSH
615 PACIFIC BUILDING
PORTLAND, OREGON 97204
TELEPHONE (503) 224-8200

March 2, 1978

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

NOTED
JACK L. SOLLIS

Mr. George Bell
Special Assistant, Public Affairs
Department of Transportation
Transportation Building
Salem, Oregon 97210

Re: Production of 16 mm. Sound Movie Film - Columbia River (I-205) Bridge

Dear Mr. Bell:

I am an attorney representing Photo-Art Commercial Studios, Inc., of Portland, Oregon. Photo-Art, pursuant to invitation from your department, bid on the above-referred to job (Project of 16 mm. Sound Movie Films - Columbia River (I-205) Bridge, East Portland Freeway, Multnomah County, Oregon).

It is our information Photo-Art submitted the lowest responsible bid ($53,668), which was 82% lower than the bid submitted by the company that was awarded the contract ($97,938). To our knowledge, Photo-Art was never disqualified as a bidder.

The purpose of this letter is to request the Department of Transportation to reconsider its decision to proceed under the contract with the company to whom the bid was originally awarded. We formally request cancellation of the I-205 Columbia River Bridge contract and, further, demand that the contract be awarded to Photo-Art Commercial Studios, Inc., for the following reasons:

It is the position of Photo-Art Commercial Studios, Inc., the contract for 16 mm. sound movie films was a public contract within the meaning of ORS 279.011(1). The statute provides:

X

> "'Public contract' means any purchase, lease or sale by a public agency of personal property, public improvements, or services other than agreements which are exclusively for personal service."

This contract was for the supply of film and was not thereby "exclusively for personal service."

ORS 279.015(1) provides that all public contracts shall be based on competitive bid. The contract at issue herein would not meet any enumerated exceptions in the statute. It is, therefore, the position of Photo-Art Commercial Studios, Inc., that the contract was a public contract within the meaning of Chapter 279 of the Oregon Code; that the contract was let upon competitive bid as required by ORS 279.015; and that Photo-Art was the lowest responsible bidder under the statute and, therefore, entitled to the award of the contract.

In the alternative, we ask that your agency conduct a hearing to determine that the representations made by the company that was awarded the bid; to-wit, that its chief cinematographer, Gene Ellis, was employed by it at the time the presentation was made to the State Highway Department was in fact true and whether Thomas K. Nash, Director of Marketing, was in fact employed by the company at the time the presentation was made.

Ina letter dated January 18, 1978, Douglas L. Fellman, furnished the State Highway Department a letter from Eugene Ellis to Derek Muirden which stated in part:

> "At the time that Odyssey Productions made their presentation to the State, 10 June 1977, I was not in the employment of Odyssey Productions, Inc., having severed relations with them on the first of June of 1977. I had previously notified them in writing at least thirty (30) days prior to that time..."

In a written presentation made by the company that was awarded the bid, the following was stated concerning

Mr. Ellis:

> "Gene Ellis, in his previous capacity as a television documentary cameraman and Navy cameraman, has filmed in many difficult and unusual situations that make him well qualified to handle a project of this type. In addition to countless hours of aerial and high-speed camera work, Mr. Ellis is an accomplished diver and certified underwater photography instructor. He filmed a one-hour documentary on 'Operation Deep Freze' with the National Science Foundation in the Antartic. All of these skills have been utilized in work produced by Odyssey, . . ."

In that portion of the written presentation of Odyssey Productions, Inc., to the State Highway Department, the following is contained in that portion done for Willamette-Western Corporation:

> "Because of Odyssey's proven expertise in filming under unusual and difficult conditions (our Chief Cinematographer, Gene Ellis, is a Certified Underwater and Aerial Photographer) we were selected to create a film history of this project."

Material representations made with respect to a bidder's ability to perform under an awarded contract, if not true, are sufficient grounds to set aside a contract. A hearing such as requested would determine the facts.

On the basis of the foregoing, Photo-Art Commercial Studios, Inc., requests cancellation of the contract awarded and requests further that the contract be awarded to it as the "lowest responsible bidder."

In the alternative, Photo-Art Commercial Studios, Inc., requests a hearing before the Department of Transportation to present testimony and evidence which would establish whether or not material misrepresentations of fact were made in procurement of this contract.

Yours very truly,

Michael J. Walsh

Michael J. Walsh

MJW:mj

8905

X

February 21, 1978

Mr. Douglas L. Fellman
The Film Loft
1942 N. W. Kearney
Portland, OR 97209

Dear Mr. Fellman:

Your recent letter requested this Department to cancel its contract with Odyssey Productions for filming of the I-205 Columbia River Bridge construction and reopen bidding to all interested parties.

Please be advised that we plan to continue the contract with Odyssey Productions, which is a professional services contract. Contracts for personal and professional services are not subject to bidding procedures such as is the case for construction projects having complete plans and specifications.

Your interest in this project is appreciated, and I hope you will be available in the future when the Department may again need a film maker.

Sincerely,

E. S. Hunter
Technical Services Engineer

ESH:ja

bc F. B. Klaboe
L. W. Rulien
Jack Sollis
R. L. Schroeder
Walt Hart
Ed Hardt
George Bell

X

FORM 81-734-3030

**OREGON STATE HIGHWAY DIVISION** FILE:

INTER-OFFICE CORRESPONDENCE

Portland, Oregon

January 25, 1978

FROM: ALLAN C. HARWOOD

SUBJECT: Filming Contract
Columbia River Bridge

TO: BOB ELLISON

Yesterday we discussed correspondence from Doug Fellman suggesting the contract with Odyssey Films be terminated. I feel termination would not be in the best interest of the State.

Termination and readvertisement as suggested by Mr. Fellman would result in an extensive gap in the coverage of the bridge construction not only due to the time required to effect the termination and to advertise and get another contractor but also the time required to develop administrative procedures and schedules for shooting which would insure adequate coverage of the project.

To date three days have been spent filming activities which include the ground breaking ceremonies, initial construction phase, dredging and embanking material on Government Island, survey crews performing pre-construction triangulation work, aerial filming of the project and other miscellaneous views.

Over 2700 feet of film has been shot. A preliminary outline of the script for the film has been developed, the tentative shooting schedule based on the contractors work schedule has been prepared, the gathering of back ground information is in progress and the various necessary administrative procedures established.

I have another shooting day tentatively scheduled this week and a meeting scheduled next week with Mr. deWeese to further discuss the shooting schedule and script.

A script outline prepared by Odyssey is enclosed for your information and comment.

b
Enclosure

RECEIVED
JAN 27 1978
BRIDGE SECTION

NOTED
R. W. ELLISON

odyssey
productions inc.

**RECEIVED**
OREGON STATE HIGHWAY DEPT.
OCT 14 1977

October 13, 1977

Mr. Al Harwood, Projects Engineer
Oregon State Highway Division
Columbia I-205 Bridge Film
1919 N.W. Thurman Street
Portland, Oregon 97209

Dear Al:

During the past month we have been developing some basic outlines of the scripts for the films of the Columbia I-205 Bridge. This is necessary in order to guide our research and study.

Our approach is to have a somewhat uniform introduction to all three films, three to four minutes in length. This is illustrated by Sections I-V in the enclosed outline. The main part of each film would be the actual construction, Section VI, and this is covered by all our current and future cinematography.

We would like to obtain from you within the next month as much material as possible on the following:-

Section II - The First Interstate Bridge
Section III- The Enlarged Interstate Bridge
Section IV - Today's Problems
Section V - The New Columbia I-205 Project

Whenever you are ready, we would be glad to meet with you and review this subject.

Yours very truly,

ODYSSEY PRODUCTIONS, INC.

R. W. deWeese
President

RECEIVED
JAN 27 1978
BRIDGE SECTION

RWdW:c
Enclosure

123 northwest second avenue · portland, oregon · 97209 · phone (503) 223-3480

ODYSSEY PRODUCTIONS, INC.
123 N.W. 2nd AVE. • PORTLAND, OREGON 97209 • (503) 223-3480

## FIRST DRAFT

## SCRIPT OUTLINE

### OPENING SEQUENCES - All Three Films

I THE COLUMBIA - RIVER OF HISTORY

- a) The 1800's - before the westward migration
- b) Fort Vancouver - canoes and boats to cross
- c) The days of the sternwheelers and river boats
- d) The growth of cities

II THE FIRST INTERSTATE BRIDGE - 19__

- a) Conception and design
- b) Construction
- c) The growth of highways
- d) The growth of industry and cities
- e) The traffic load grows

III THE ENLARGED INTERSTATE BRIDGE - 19__

- a) Concept and construction
- b) Growing cities
- c) Workers, jobs, and traffic load
- d)

IV 1977 - TODAY'S PROBLEMS

- a) Portland-Vancouver complex
- b) Metropolitan area - population
- c) Traffic patterns and jobs
- d) Tourism
- e) The search for alternatives and solutions

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JAN 27 1978
BRIDGE SECTION

9/6/77

V THE COLUMBIA - I 205 BRIDGE (proper name?)

- a) Research and development
- b) Design concepts
- c) Objectives - goals for future
- d) Costs
- e) Benefits to citizens
- f) Present and future traffic flow

VI CONSTRUCTION - PHASE I - PIERS

Create first twenty-minute film, incorporating vivid, accurate, information, and technically correct sequence of construction of piers - use of narration, lip sync interviews, voice-over of sequences, construction staff, civic leaders, planners, governmental agencies, etc.

Estimated time I through V - 3 minutes ±
Estimated time VI - 17 minutes ±

RECEIVED
JAN 27 1978
BRIDGE SECTION

THE FILM LOFT

Douglas L. Fellman Derek W. Muirden George F. Hood

January 18, 1978

Mr. E.S. Hunter
Technical Services Engineer
Dept. Of Transportation
Transportation Bldg.
Salem, Oregon 97310

Dear Mr. Hunter:

Regarding your letter and enclosures of December 9, 1977, a number discrepancies in this and other materials related to the proposed film on the construction of the I-205 Columbia River Bridge has come to our attention. To be perfectly frank, we believe that these questions are serious enough in nature to warrant cancellation of the awarded contract and that, further, the bidding should be reopened to all interested parties.

I would like to enumerate five points that I feel support this conclusion:

1) The winning bid was 82% higher than a qualified bid submitted by Photo Art for $53,668. See Item #1 enclosed. (letter from E.S. Hunter to Ralph Budd dated Dec. 9, 1977). The only indication we have received to date that might in any way call into question the qualifications of the Photo Art bid came in a phone conversation between Warren Knight of Photo Art and Mr. George Bell during which Mr. Bell indicated that Odyssey Productions had submitted a firm bid while Photo Art's bid had contained escalator clauses. Clearly, this is not the case as page 2 of the "Business Proposal" section of Odyssey Productions' bid contains an "escalation" clause as well.

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TECHNICAL SERVICES
JAN 19 '78
REFER TO
FOR
Info Inves R/D O/R Plan Act File

2) Many qualified film production companies were not represented in the bidding. Considering that there are thirty (30) film production companies listed in the Portland phone book alone (with probably that many more scattered throughout the state) and given that this is probably the largest single film

1942 N.W. Kearney
Portland, Oregon
97209
(503) 243-1942

contract ever let out by the State of Oregon, it would seem that a fair representation would include more than just the five companies listed as submitting bids. See item #1 enclosed. I personally know of at least three (3) qualified production companies, desiring to submit bids, who didn't simply because they were not made aware of the bidding.

3) In two places of the Odyssey Productions bid reference is made to Mr. Arthur (Gene) Ellis as "chief cinematographer" in the employ of Odyssey Productions, Inc. with specific qualifications relating to this project. See Item #2 enclosed (page 2 of "Odyssey Experience-- Construction Projects" from Odyssey bid) and Item #3 enclosed (pages 5 & 6 of "Credits and Resumes" from Odyssey bid). It has come to our attention that Mr. Ellis had terminated employment with Odyssey Productions as of the date of the Odyssey bid presentation and had in fact given his notice some thirty days before that. See Item #5 enclosed (letter from Gene Ellis to Derek Muirden dated January 9, 1978). Further, it should be noted that none of the information relating to Mr. Ellis was submitted with his knowledge or consent.

4) In two places of the Odyssey Productions bid the reader is given the very definite impression that Odyssey Productions has been awarded the film contract for the Bonneville Power Administration's "1100/1200 KV Transmission Project." See Item #2 enclosed (page 2 of "Odyssey Experience-- Construction Projects" from Odyssey bid) and Item #4 (pages 3,4, & 5 of same section from Odyssey bid). In fact, this film contract was awarded to Cinema Associates, Inc. of Seattle, Washington, not to Odyssey Productions. This is a matter of public record and has been verified by the B.P.A. in a letter to Photo Art dated November 2, 1977.

5) It is our understanding that underwater footage taken by Mr. Ellis in the waters off the State of Hawaii was shown at the Odyssey Production's presentation to the board by way of promoting their underwater filming capabilities. Mr. Ellis has given us to understand (verbally) that this footage was generated prior to his employment with Odyssey Productions and has no connection with that company whatsoever. Further, this film was shown with neither the knowledge nor the permission of Mr. Ellis.

In summary we feel that taking all of these factors into account, the film contract to document the construction of the I-205 Columbia River Bridge was unjustly awarded. Therefore, I would like to take this opportunity to formally request that the bid award be cancelled and that the bidding be reopened with all prospective bidders renotified and given an opportunity to submit bids.

I feel that the information obtained in the process of gathering the bids already submitted could be effectively used to give production companies more concrete data upon which to base a bid (in a potential second round of bidding) since the original solicitation for bids was unnecessarily vague and non-specific. This undoubtedly led to much confusion in the preparation of the original bids since important factors such as the number of shooting days required were not specified.

In any case, I would hope that you will give this matter your prompt and considered attention and I eagerly await your reply.

Sincerely yours,

Douglas L. Fellman

Douglas L. Fellman

cc: Sen. Ted Hallock

Mr. Warren Knight, Photo Art

ROUTING SLIP

e:

DEPARTMENT OF TRANSPORTATION

Director
Chief of Operations
Asst. Dir.-Administration
Asst. Dir.-Transportation Policy & Program Develop.
Accounting (Highway)
Administrative Services
Chief Counsel
Commission Services
Computer Center (Lane Ave.)
Construction
Data Processing (Transp.Bldg.)
Employee Development
Engineering (Design)
Environmental
Equipment Shops
Finance (DOT)

FHWA
General Files
General Services (DOT)
Information Systems (Lane Ave.)
Landscape
Library
Location
Mail Room
Materials & Research
Motor Vehicles
Organization & Manpower Services
Parks & Recreation
Permits & Weighmaster
Personnel Operations
Photocopy
Proj. Mgmt. & Operations Planning

Public Affairs
Public Transit
Radio
Right of Way
Safety & Health Services
Sign Shop
State Highway Engineer
Structures
[✓ Technical Services Engineer]
Traffic Support Services
Transportation Policy & Program Development
Travel Information
Utilities
Metropolitan
Region Number ________
District Number ________

ATTENTION: E.J. Hunter

FROM: George Bell

(Bell sent Klaboe a cy also)

Form 81-731-0022 (7/77)

LAW OFFICES OF
MICHAEL J. WALSH
615 PACIFIC BUILDING
PORTLAND, OREGON 97204

TELEPHONE (503) 224-5200

RECEIVED
TECHNICAL SERVICES
FEB 13 '78
REFER TO
~~Hart~~ - Venster
2-13-78

cy-

February 6, 1978

Mr. James Redden, Esq.
Chairman, Public Contracts Review Board
100 State Office Building
Salem, Oregon 97310

Re: Production of 16 mm Sound
Movie Films - Columbia River
(I-205) Bridge

Dear Mr. Redden:

I am an attorney representing Photo-Art Commercial Studios, Inc., of Portland, Oregon. The purpose of this letter is to request a hearing before your board pursuant to ORS 279.045(2).

In or about May of 1977, Mr. George Bell, Special Assistant to Public Affairs, State Department of Transportation, sent a letter and enclosed a prospectus regarding a contract to be let by public bid for a film of the construction of the Columbia River Bridge, East Portland Freeway. The prospectus noted that interested parties would be expected to present their proposals before a consultant selection committee of the Oregon Department of Transportation.

The consultant selection committee was eventually comprised of the following members:

F. [illegible] Hunter, Deputy State Highway Engineer
R. L. Schroeder, Assistant State Highway Engineer
L. [illegible] Pulien, Program Management Engineer
E. L. Hardt, Region I Engineer
W. J. Hart, Bridge Engineer
George Bell, Department of Transportation,
Special Assistant for Public Affairs.

In or about June of 1977, five firms presented their proposals for the Columbia River Bridge project film contract in the following ascending order of bid amounts:

| | |
|---|---|
| Photo-Art Commercial Studios, Inc. | $ 53,668 |
| Odyssey Productions | 97,938 |

x

| | |
|---|---|
| Video/Tape | 155,945 |
| Tele-West Associates | 192,062 |
| Video Production | 219,700 |

Photo-Art Commercial Studios, Inc., therefore, was the low bidder on the project. The bid was awarded, however, to Odyssey Productions.

On or about January 18, 1978, Mr. Douglas L. Fellman of The Film Loft, 1942 NW Kearney, Portland, Oregon 97209, addressed a letter to Mr. E. S. Hunter, Technical Services Engineer, Department of Transportation, Salem, Oregon. The letter, in essence, comprised a demand upon the State Department of Transportation to re-open the bid.

Photo-Art Commercial Studios, Inc., herein requests a hearing before the Public Contracts Review Board regarding this matter for the following reasons:

First, Photo-Art was the "lowest responsible bidder" on the public contract pursuant to ORS 279.029(1). Photo-Art substantially complied with all proper bidding procedures and requirements; and Photo-Art would not be disqualified pursuant to ORS 279.037.

Second, ORS 279.041(2) provides that if a public contracting agency should disqualify a bidder under the provisions of ORS 279.037, particularly where a bidder is the lowest bidder, then the agency must both notify the bidder, the bidder does not qualify to perform the contract, and identify to the bidder the specific subsection or subsections of ORS 279.037 that would be applicable. Photo-Art has received no notice in this regard.

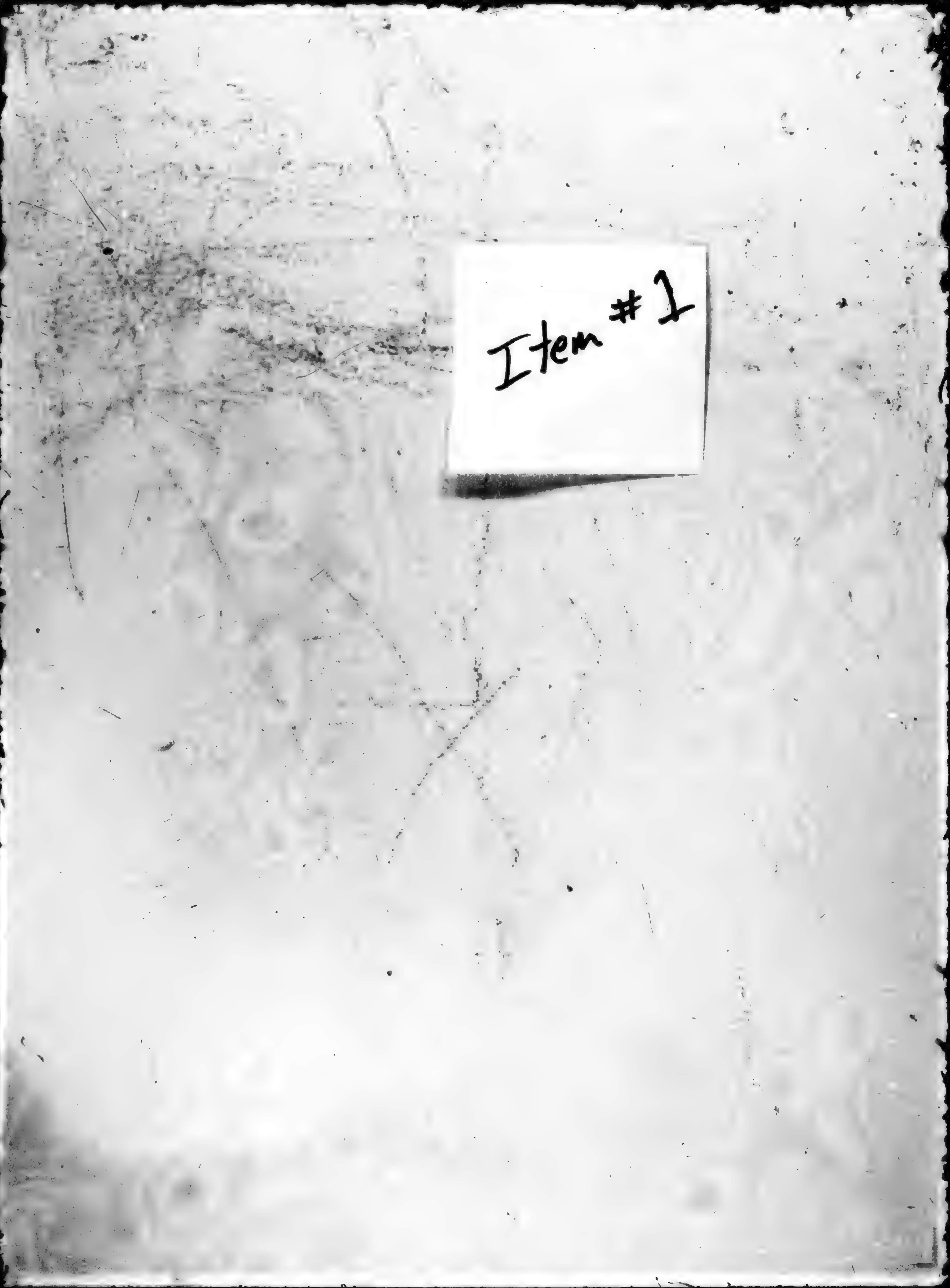
On the foregoing basis, Photo-Art Commercial Studios, Inc., appeals from the decision to award the film contract to Odyssey Productions, Inc., and respectfully requests the Public Contracts Review Board to set a time and place for hearing pursuant to ORS 279.045(2).

May we hear from you.

Yours very truly,

Michael J. Walsh

MJW:mj
cc: Mr. George Bell
Department of Transportation
Transportation Building
Salem, Oregon 97310



Item #1

ROBERT W. STRAUB
GOVERNOR

*Department of Transportation*

TRANSPORTATION BUILDING, SALEM, OREGON 97310

December 9, 1977

Mr. Ralph Budd
The Film Loft
1942 N. W. Kearney
Portland, OR 97209

Dear Mr. Budd:

Mr. Bell has asked me to answer your December 2 letter concerning selection of a firm to film construction of the I-205 Columbia River Bridge.

Enclosed is a copy of the Odyssey Productions, Inc. proposal, as requested.

The estimates for filming, as proposed by the five firms submitting proposals, are:

| | |
|---|---|
| Tele-West Associates | $192,062 |
| Video/Tape | 155,945 |
| Photo Art | 53,668 |
| Video Productions | 219,700 |
| Odyssey Productions | 97,938 |

The members of the consultant selection committee for this project were:

E. S. Hunter, Deputy State Highway Engineer
R. L. Schroeder, Assistant State Highway Engineer
L. W. Rulien, Program Management Engineer
E. L. Hardt, Region I Engineer
W. J. Hart, Bridge Engineer
George Bell, DOT Special Assistant for Public Affairs

The firms were interviewed and the selection committee made its choice immediately thereafter. The transcripts or minutes you requested are not enclosed as the interviews and discussions were not recorded.

After hearing the presentations, the committee considered factors such as the professional competence of the personnel, depth and quality of staff, experience with similar projects, quality of presentation films, understanding of the project, stability of the firm, et cetera, and unanimously selected Odyssey Productions, Inc.

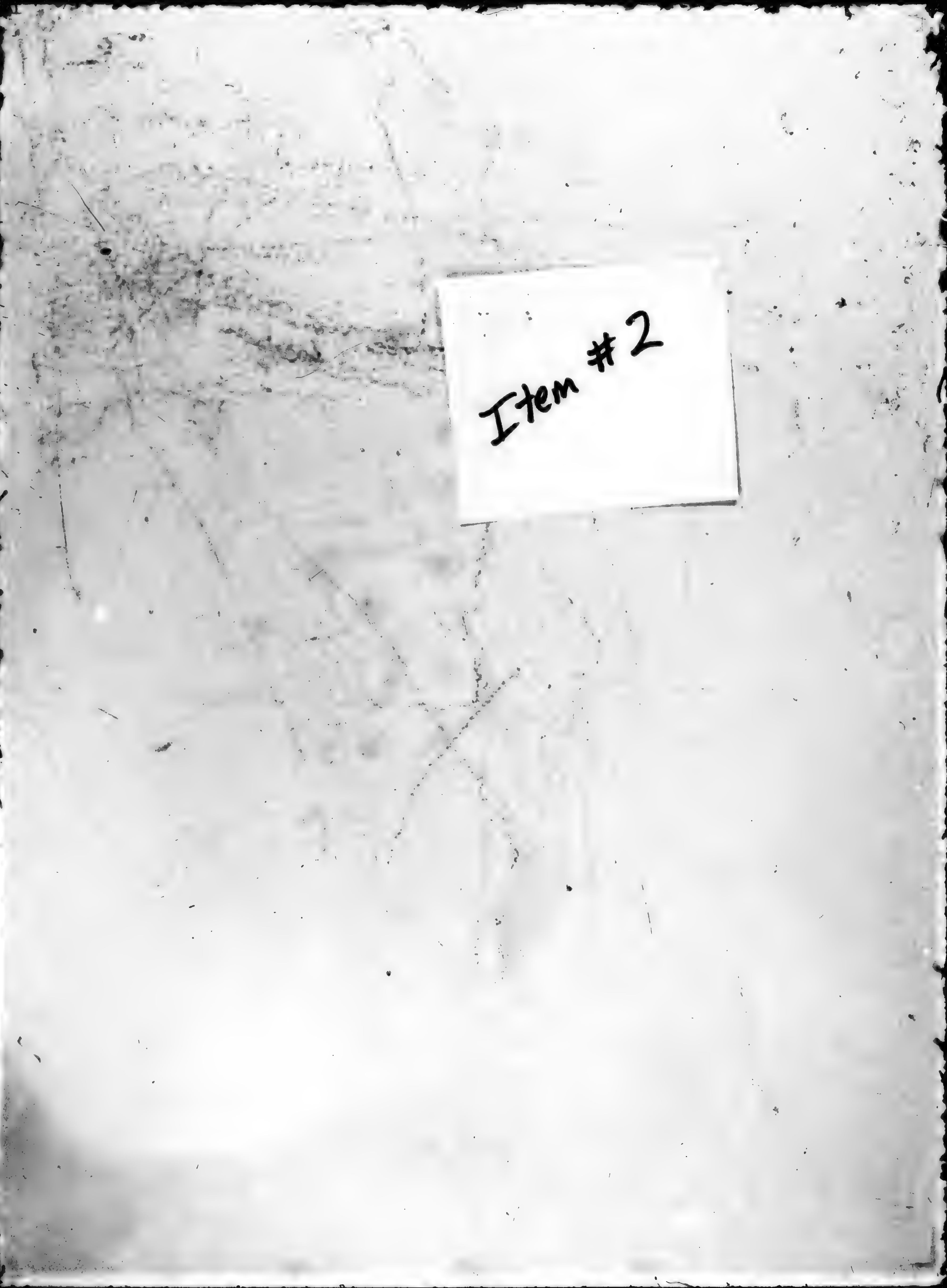
Very truly yours,

ES Hunter

E. S. Hunter
Technical Services Engineer

ESH:ja

Enc.



Item #2

NATIONAL SCIENCE FOUNDATION

"OPERATION DEEP FREEZE"

Gene Ellis, in his previous capacity as a television documentary cameraman and Navy cameraman, has filmed in many difficult and unusual situations that make him well qualified to handle a project of this type. In addition to countless hours of aerial and high-speed camera work, Mr. Ellis is an accomplished diver and certified underwater photography instructor. He filmed a one-hour documentary on "Operation Deep Freeze" with the National Science Foundation in the Antarctic. All of these skills have been utilized in work produced by Odyssey, the most recent of which is the filming of "Caisson #9" for Willamette Western and the filming of the 1100kV program for the Bonneville Power Administration.

Item #3

"(CREDITS"

# RESUME

NAME: ARTHUR E. ELLIS

DATE OF BIRTH: 3/8/37

POSITION: CINEMATOGRAPHER

EDUCATION: Attended Naval Schools of Photography Class A and Class C Motion Picture. Studied "Statistical Quality Control" at Rochester Institute of Technology, Rochester, New York. Studied 35mm format photo-journalism at Leica Technical Center, E. Leitz, New York, N.Y.

Served with the Navy's famed combat camera group in the Pacific documenting the shelling of Quemoy and Matsu, the 1962 Nuclear Operations in the Pacific and field operations in Vietnam.

| | |
|---|---|
| CURRENT: | Chief Cinematographer for Odyssey Productions, Inc. |
| 1971-1974 | News and Production Cameraman for KHON-TV in Honolulu and KOIN-TV in Portland, Oregon. |
| 1967-1971 | Motion Picture Lab Manager and Director of Photography for KGMB-TV's Project 9, a five-man documentary team. Filmed one-hour documentary on Operation Deep Freeze with the National Science Foundation and one-hour documentary on "Hawaii Reefs" and "Pelagic Fish". |
| 1966 | Customer Service Representative for Technicolor |
| 1964-1966 | Freelance in Asia, Tahiti and Hawaii |
| 1954-1964 | Photographer's Mate in U.S. Navy |

Have a thorough working knowledge of cinematography, from aerial (helicopter and fixed wing), to underwater (Certified Navy Advanced Diver).

Have a thorough knowledge of laboratory processes and techniques.

Have utilized: Eclair, Arriflex, Bell & Howell, Mitchell, Cinema Products CP-16, Auricon conversions, 16 and 35mm motion picture cameras, Burns & Sawyer, Underwater Housing for Arriflex, Samson Hall for Bell & Howell, Bolex 16 Underwater, and Bell Helmet cameras.

Item #4

ODYSSEY PRODUCTIONS, INC.
123 N.W. 2nd AVE. • PORTLAND, OREGON 97209 • (503) 223-3480

BONNEVILLE POWER ADMINISTRATION

1100/1200-kV TRANSMISSION PROJECT

Recently, the Bonneville Power Administration was called upon to carry out a project of critical importance to our ability to meet tomorrow's energy needs.

At a projected cost of $10.6 million dollars, BPA is designing, constructing and testing two experimental stretches of 1100/1200 Kilovolt transmission lines. To evaluate accurately the economic and environmental effects of ultra-high voltage transmission, these lines are capable of carrying more power than any lines have ever carried before. Also, these prototype test facilities provide the opportunity to optimize 1100/1200-kV design before actual construction.

To appraise adequately full system performance, Bonneville built two test facilities for two separate purposes. Near Lyons, Oregon, it put in an Electrical Test Line which runs for 1.3 miles adjacent to an existing 230-kV line. And near Moro, Oregon, BPA installed a 1.1 mile Mechanical Test Line.

-4-
"CONS'T"

ODYSSEY PRODUCTIONS, INC.
123 N.W. 2nd AVE. • PORTLAND, OREGON 97209 • (503) 223-3480

Odyssey Productions was selected to create a film history of this unique and important project. Our camera crews have filmed the construction of several types of specially-designed towers, both from the ground and from BPA helicopters. We filmed the hanging of insulators which have a mechanical and electrical strength of 120,000 pounds, and we filmed the stringing of subconductor bundles three and a half feet wide!

Our cameras recorded the arrival and installation of the huge autotransformers which convert 230-kV power into 1100-kV power, and we visited the trailers where sophisticated instrumentation systems, linked to computers, monitor all the test data. At the Ross Laboratory complex in Vancouver, we photographed all the various types of preliminary design and test work which preceded actual line construction.

At the present time, we are filming the numerous electrical and mechanical testing procedures: measurement of corona loss, audible noise, environmental effects, wind and icing conditions, and so on. When sufficient testing footage has been accumulated, all the segments will be meshed. BPA will then possess a film which will be of immediate interest to an audience worldwide in scope, because what is learned here about UHV transmission possesses worldwide significance.

With input from a wide range of BPA officials, Odyssey has prepared the script which links all the elements and maximizes audience understanding and appreciation of this dramatic step forward in power transmission.

Item #5

Mr. Derek Muirden
"THE FILM LOFT"
1492 NW Kearney
Portland, Oregon

9 January 1978

Dear Derek,

I certainly hope that this finds you fully recovered from the Holiday festivities and enmeshed in epic film-making.

I thought I might recount our recent conversation regarding any participation I may have had in bidding or having been involved with others in the presention of bids to the State of Oregon on the films being made of the building of I-205 hiway bridge connecting Oregon and Washington.

At the time that Odyssey Productions made their presentation to the State, 10 June 1977, I was not in the employment of Odyssey Productions Inc. having severed relations with them on the first of June of 1977. I had previously notified them in writing at least thirty (30) days prior to that time...

I was somewhat surprised in hearing that they had utilized my resume extensively in making the presentation and not receiving my permission to do so. I am somewhat disturbed by the matter and have not decided on what steps should be taken to prevent such a thing in the future...

I was aware of the tentative bidding on the project and Mr. DeWeese mentioned vaguely that they might hire me from time to time to shoot for Odyssey Productions, but at no time was any sort of contract approach made to me nor was permission requested to use my name and credentials.

As far as I am concerned I have no intention of bidding on this particular project in the future and wish you luck in clarifying a clear situation of misrepresentation by a contractor... I personally have no desire to castigate Odyssey Productions and have a great deal of respect for some members of the Odyssey staff, however I do intend to take the necessary steps to insure that that sort of thing does not happen again...

I certainly hope that this clarifies my involvement in the matter and wish you good-luck...

Sincerely Gene Ellis

Gene Ellis, Cinematographer

8905

9

GE AL FILES

LAW OFFICES OF
MICHAEL J. WALSH
615 PACIFIC BUILDING
PORTLAND, OREGON 97204
TELEPHONE (503) 224-5200

RECEIVED
STATE HWY ENGR
FEB 13 '78
REFER TO
Legal
FOR
Info | Inves | R/D | D/R | Sign | Act | File

February 6, 1978

Mr. James Redden, Esq.
Chairman, Public Contracts Review Board
100 State Office Building
Salem, Oregon 97310

Re: Production of 16 mm Sound
Movie Films - Columbia River
(I-205) Bridge

Dear Mr. Redden:

I am an attorney representing Photo-Art Commercial Studios, Inc., of Portland, Oregon. The purpose of this letter is to request a hearing before your board pursuant to ORS 279.045(2).

In or about May of 1977, Mr. George Bell, Special Assistant to Public Affairs, State Department of Transportation, sent a letter and enclosed a prospectus regarding a contract to be let by public bid for a film of the construction of the Columbia River Bridge, East Portland Freeway. The prospectus noted that interested parties would be expected to present their proposals before a consultant selection committee of the Oregon Department of Transportation.

The consultant selection committee was eventually comprised of the following members:

F. S. Hunter, Deputy State Highway Engineer
P. L. Schroeder, Assistant State Highway Engineer
L. W. Rulien, Program Management Engineer
E. L. Hardt, Region I Engineer
W. J. Hart, Bridge Engineer
George Bell, Department of Transportation,
Special Assistant for Public Affairs.

In or about June of 1977, five firms presented their proposals for the Columbia River Bridge project film contract in the following ascending order of bid amounts:

| | |
|---|---|
| Photo-Art Commercial Studios, Inc. | $ 53,668 |
| Odyssey Productions | 97,938 |

| | |
|---|---|
| Video/Tape | 155,945 |
| Tele-West Associates | 192,062 |
| Video Production | 219,700 |

Photo-Art Commercial Studios, Inc., therefore, was the low bidder on the project. The bid was awarded, however, to Odyssey Productions.

On or about January 18, 1978, Mr. Douglas L. Fellman of The Film Loft, 1942 NW Kearney, Portland, Oregon 97209, addressed a letter to Mr. E. S. Hunter, Technical Services Engineer, Department of Transportation, Salem, Oregon. The letter, in essence, comprised a demand upon the State Department of Transportation to re-open the bid.

Photo-Art Commercial Studios, Inc., herein requests a hearing before the Public Contracts Review Board regarding this matter for the following reasons:

First, Photo-Art was the "lowest responsible bidder" on the public contract pursuant to ORS 279.029(1). Photo-Art substantially complied with all proper bidding procedures and requirements; and Photo-Art would not be disqualified pursuant to ORS 279.037.

Second, ORS 279.041(2) provides that if a public contracting agency should disqualify a bidder under the provisions of ORS 279.037, particularly where a bidder is the lowest bidder, then the agency must both notify the bidder, the bidder does not qualify to perform the contract, and identify to the bidder the specific subsection or subsections of ORS 279.037 that would be applicable. Photo-Art has received no notice in this regard.

On the foregoing basis, Photo-Art Commercial Studios, Inc., appeals from the decision to award the film contract to Odyssey Productions, Inc., and respectfully requests the Public Contracts Review Board to set a time and place for hearing pursuant to ORS 279.045(2).

May we hear from you.

Yours very truly,

Michael J. Walsh

MJW:mj
cc: Mr. George Dell
Department of Transportation
Transportation Building
Salem, Oregon 97310

GENERAL FILES

December 9, 1977

Mr. Ralph Budd
The Film Loft
1942 N. W. Kearney
Portland, OR 97209

Dear Mr. Budd:

Mr. Bell has asked me to answer your December 2 latter concerning selection of a firm to film construction of the I-205 Columbia River Bridge.

Enclosed is a copy of the Odyssey Productions, Inc. proposal, as requested.

The estimates for filming, as proposed by the five firms submitting proposals, are:

| | |
|---|---|
| Tele-West Associates | $192,062 |
| Video/Tape | 155,945 |
| Photo Art | 53,668 |
| Video Productions | 219,700 |
| Odyssey Productions | 97,938 |

The members of the consultant selection committee for this project were:

E. S. Hunter, Deputy State Highway Engineer
R. L. Schroeder, Assistant State Highway Engineer
L. W. Rulien, Program Management Engineer
E. L. Hardt, Region I Engineer
W. J. Hart, Bridge Engineer
George Bell, DOT Special Assistant for Public Affairs

The firms were interviewed and the selection committee made its choice immediately thereafter. The transcripts or minutes you requested are not enclosed as the interviews and discussions were not recorded.

After hearing the presentations, the committee considered factors such as the professional competence of the personnel, depth and quality of staff, experience with similar projects, quality of presentation films, understanding of the project, stability of the firm, et cetera, and unanimously selected Odyssey Productions, Inc.

Very truly yours,

E. S. Hunter
Technical Services Engineer

ESH:ja

Enc.

| | | |
|---|---|---|
| bc | F. B. Klaboe | (enc.) |
| | R. L. Schroeder | " |
| | L. W. Rulien | " |
| | Ed Hardt | " |
| | W. J. Hart | " |
| | George Bell | " |

THE FILM LOFT

Douglas L. Fellman Derek W. Muirden George F. Hood

December 2, 1977

Mr. George Bell
Spec. Asst. for Public Affairs
Dept. of Transportation
Salem, Oregon 97310

Dear Mr. Bell,

This letter is to serve as a formal request for the materials used by your committee in its awarding of the I-205 bridge filming contract.

I would like a copy of the winning bid proposal (Odyssey ✓ Productions), of the I-205 Bridge film contract. In addition, I would like a tally sheet listing the bottom ✓ line dollar figures for all the bid proposals submitted on the project.

I am also requesting any transcripts or minutes of the ✓ committee's meetings at which the I-205 Bridge film was under consideration, and the names of those persons who ✓ served on the selecting committee.

We are willing to pay for reasonable xeroxing fees.

Thank you very much.

Sincerely yours,

Ralph Budd

Ralph Budd

RECEIVED
TECHNICAL SERVICES
DEC 8 '77
REFER TO
FOR

| Info | Inves | R/D | D/R | Sign | Act | File |
|---|---|---|---|---|---|---|
| | | | | | | |

1942 N.W. Kearney
Portland, Oregon
97209
(503) 243-1942

THE FILM LOFT

Douglas L. Fellman    Derek W. Muirden    George F. Hood

**RECEIVED**
**ENVIRONMENTAL SECTION**
NOV 0 8 1977
Referred to ____________

November 2, 1977

Mr. George Bell
Spec. Asst. for Public Affairs
Dept. of Transportation
Salem, Oregon 97310

Dear Mr. Bell,

I am requesting the material used by your committee in its awarding of the I-205 bridge filming contract.

I would like copies of all of the I-205 bridge bid proposals (including our own-- Photo Art/The Film Loft) along with any other supporting materials which were submitted to the committee or used by the committee in its selection of the film production company for this contract.

Also, are transcripts or minutes available of the committee's meetings at which the I-205 bridge film was under consideration?

Your immediate attention to this request would be most appreciated.

Thank you.

Sincerely

Ralph Budd

**RECEIVED**
**TECHNICAL SERVICES**
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| Info | Inves | R/D | D/R | Sign | Act | File |
|---|---|---|---|---|---|---|
|  |  |  |  |  |  |  |

1942 N.W. Kearney
Portland, Oregon
97209
(503) 243-1942

x

8905

TO → OSHD (COULTER)

U. S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
Box 300
Salem OR 97308

NOTED
H. S. COULTER

December 6, 1977

IN REPLY REFER TO
HDA-OR/INQ-764

RECEIVED
STATE HWY ENGR
DEC 8 '77
REFER TO
FOR
Info Invest R/D D/R Sign Act File

12-9-77
cy Keaton
Hunter
Geo Bell
Ed Hardt
Al Harwood

Ms. Theresa Haller
1913 Wards Creek Road
Rogue River, Oregon 97537

Dear Ms. Haller:

We received your November 1 letter to Secretary Adams, concerning the filming of the Columbia River Bridge construction.

It is unfortunate the news article that prompted your concern did not describe in more detail the intent of the film. It is not uncommon to utilize movie film or pictures for a complete visual documentation of construction, for protection of the owner from legal claims that may occur when disagreements arise during large and difficult contracts. The Columbia River Bridge construction is such a contract. It is not only large and difficult, but it involves a new type of construction in the United States, which has placed other owners into court to resolve contractor-owner disputes.

The films of construction procedures are intended to accurately cover the construction work on this bridge - including any unforeseen events - and should assist in resolving any possible disputes on how the work was accomplished. The State is neither staffed nor equipped to produce these films, and it needs the help of film experts during the five-year period of construction. After the construction is completed, the films will be retained with other contract records.

The purpose of the films, therefore, is primarily for construction records. In addition, however, portions of the completed films will be combined into a single film which will document the state-of-the-art for this new construction procedure. This will provide a film that will add to the store of knowledge of technical people and which will be of interest to the citizens of Oregon.

We hope this more in-depth description of the work will explain the need for this movie-making.

Sincerely yours,

G L Green

G. L. Green
Division Administrator

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WASHINGTON, D.C. 20590

NOV 25 1977

IN REPLY REFER TO:

HNG-10

Ms. Theresa Haller
1913 Wards Creek Road
Rogue River, Oregon 97537

Dear Ms. Haller:

We have been asked to answer your letter of November 1 to Secretary of Transportation Brock Adams. You are concerned about the use of Federal-aid highway funds to film construction of the bridge across the Columbia River at Portland, Oregon.

Because we do not have sufficient information in our Washington Headquarters to respond fully to your inquiry, we are asking our field representatives in Oregon to review your letter and reply further to you. You should be hearing from them in the near future.

Sincerely yours,

Sgd/J. W. Burdell, Jr.

Joseph W. Burdell, Jr.
Chief, Federal-Aid Division

Nov 1, 1977

U.S. DEPT OF TRANSPORTATION
'77 NOV 4 PM 3:23

OFFICE OF THE SECRETARY
OF TRANSPORTATION
EXECUTIVE SECRETARIATE

Dept of Transportation,
400 7th SW
Wash D.C. 20590

Dear Mr Adams,

I am enclosing some articles for your perusal.

Is this legal to take the Federal Highway tax and use it for the benefit of bridge builders? If the bridge builders want this film, they should pay for it!

Sincerely,
Theresa Haller
1913 Wards Creek Road
Rogue River
Oregon 97537

ACTION
is assigned to
FHWA.

Nov 1, 1977

Governor Straub,
Salem, Oregon

Dear Sir,

I read that the Oregon Transportation Dept, is giving Odyssey Productions, $150,000, to film the new bridge accross the Columbia river. It states it is for the benefit of bridge builders. As long as it is for their benefit, I think the bridge builders should pay for it. Not the taxpayers.

There is also a 45- minute movie of "dramatic appeal". Who is going to see this? Is Mr DeWeese going to charge the viewers? If so, who gets the profits?

Despite the vote of the people, the state government has raised the mill per mile tax because the highways need repair and there is'nt enough money to repair them. How then can you justify this expenditure?

I am also writing to the Dept of Transportation in Wash D.C. to protestthe use of the taxpayers money in this manner.

Sincerely,
Theresa Haller
1913 Wards Creek Road
Rogue River , Oregon 97537

—DAILY COURIER, Grants Pass, Oregon WEDNESDAY, OCT. 26, 1977

## STATE NEWS

# Where Your Money Goes

SALEM, Ore. (AP) — The w $175 million interstate idge across the Columbia ver at Portland will get top ling in three movies to be duced with $150,000 in state d federal highway funds.

The Oregon Transportation epartment has hired dyssey Productions of rtland to film construction the span, Odyssey president W. DeWeese said Tuesday.

DeWeese said it will be the st filming of its kind in the ate. A movie of construction the Fremont Bridge across e Willamette River in ortland was pieced together om news films, but the in- rstate bridge filming will be full color and sound production, deWeese said.

The state has promised Odyssey $150,000 for the project. The federal government, which is paying 92 per cent of the bridge costs, will pay $138,000 for the film with the state paying $12,000.

The bridge is to be completed by late 1981. It will link the Interstate 205 freeway east of Portland with Interstate 5 near Vancouver, Wash.

Odyssey will produce three films. Two will be 20-minute productions designed mainly for bridge builders, and the third will be a less technical 45-minute movie with "dramatic appeal," DeWeese said.

8905

J

## DEPARTMENT OF JUSTICE

**Memorandum**

NOTED
H. S. COULTER

DATE: November 23, 1977

TO: Jim Russell
Assistant Attorney General

FROM: Jack L. Sollis
Assistant Attorney General

SUBJECT: Request of J. T. Savage, Federal Highway Administration Auditor for review of contract procedures for Highway Division contract with Odyssey Productions, Inc.

I have reviewed the information you forwarded to me regarding the contract with Odyssey Productions and the process that was used to select the consultant. It is my opinion that the internal procedures of the Highway Division were followed as were the requirements of the Executive Department.

Copy
LEG 8

As I read the provisions of ORS 279.015 I can see no violation by the Highway Division. This is a contract for personal services even though the end result will be a film. The primary function under the agreement will be the providing of personal services for the making of the film. The Highway Division has set up a procedure for the screening and selection of persons to perform personal services contracts and that procedure was followed in selecting the consultant to perform the subject contract. The contract was approved by the Executive Department and therefore I can see no reason for any concern.

I do not know exactly what Mr. Savage was requesting, but if he was asking for a determination of whether or not this was a personal services contract this is a legal question to be resolved by the Attorney General and not such a question as would necessitate any action by the PCRB. The provisions of ORS 279.051 provide that the agency must set up the procedures and the PCRB may, for a good cause, order an agency to cease to exist and to adopt and follow screening selection procedures. The Highway Division has adopted the screening selection procedures and in fact was the first agency to have them. I would respectfully suggest that Mr. Savage be advised that if he has any questions concerning whether or not the Highway Division has followed legal procedures, that he make such a request in writing to the Attorney General so that the Attorney General or some member of his staff can reply. If he is asking whether or not this is a personal service contract, he should also ask this question of the Attorney General. If you would care to discuss this matter any further, I would be most happy to do so.

JLS:sjb

cc: ✓H. S. Coulter

RECEIVED
STATE HWY ENGR
NOV 25 '77
REFER TO
FOR

| Info | Inves | R/D | D/R | Sign | Act | File |
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8905

9

GENERAL FILES

FORM 81-734-3030

# OREGON STATE HIGHWAY DIVISION

FILE:

INTER-OFFICE CORRESPONDENCE
Salem, Oregon
July 21, 1977

Walter J Hart

FROM: Walter J. Hart
Structural Engineer

TO:
Mr. C. W. Head
Commission Services

SUBJECT:
Misc C & A 6197
Construction Films Agreement
Columbia River (I-205) Bridge

MISC. CONTRACTS and AGREEMENTS No. 6197

1C

Here is a fully executed copy of the agreement for filming the construction of the Columbia River (I-205) Bridge.

Copies have been sent to Odyssey Productions, Inc. (a fully executed copy), Federal Highway Administration, Vern Skoog, Jack Sollis, and A. C. Harwood.

Attachment
(1 fully executed copy of Misc C & A 6197)

cc Vern Skoog /w/ attach.
Jack Sollis /w/ attach.

NOTED
C. W. HEAD

RWE:dh ia

bc R. A. Burco
C. W. Head
F. B. Klaboe
E. S. Hunter
W. J. Hart
George Bell
J. H. Versteeg
V. E. Skoog
J. L. Sollis
A. C. Harwood
E. L. Hardt

**DATE:** July 8, 1977

**TO:** Oregon Transportation Commission

**FROM:**
H. S. Coulter
State Highway Engineer

**SUBJECT:** Finance Approval
Personal Services Agreement
Filmmaking
Columbia River (I-205) Bridge, No. 9555
Multnomah County

An agreement has been negotiated with Odyssey Productions, Inc., for the making of three films during construction of the Columbia River (I-205) Bridge. Odyssey was selected by a special selection committee made up of ODOT and Highway Division personnel. Odyssey was one of five movie making concerns which submitted proposals and made presentations to the committee.

Subjects of the three films will be: (1) main channel piers; (2) main channel superstructure; (3) overall bridge construction (main channel, south channel, Government Island fill, and Washington shore work). The films will cover the engineering and construction aspects of the work. Filming will extend over a five-year period.

The maximum cost under this agreement is limited to $150,333. It will be financed from construction engineering funds authorized for the bridge construction.

The agreement has received preliminary approval of the Federal Highway Administration.

I request your authority to proceed with this agreement. This matter will be on the Consent Calendar for your consideration at the July meeting.

8905

8

July 8, 1977

Mr. Glen L. Green
Division Administrator
Federal Highway Administration
Box 300
Salem, OR 97308

Dear Mr. Green:

Personal Services Agreement
Construction Films
Columbia River (I-205) Bridge
Bridge 9555

Attached for your preliminary approval is a copy of a personal services agreement between the State and Odyssey Productions, Inc. (Contractor) for production of three films documenting the engineering and construction of the subject project.

Selection of Odyssey followed the procedures prescribed by the State. A prospectus was written describing the project and the work involved. A solicitation was made, requesting that presentations and proposals be made to a State Selection Committee. A Selection Committee was formed which reviewed the presentations, studied the proposals, and selected Odyssey Productions, Inc., as the best-qualified organization to perform the work.

The Selection Committee was composed of R. L. Schroeder, Assistant State Highway Engineer; L. W. Rulien, Program Management Engineer; E. L. Hardt, Region I Engineer; W. J. Hart, Bridge Engineer (all from the State Highway Division); George Bell, DOT Special Assistant for Public Affairs; and me. The Committee viewed presentations and received proposals from five organizations as follows:

| | | |
|---|---|---|
| 1. | Tele-West Associates | $192,062 |
| 2. | Video/Tape | 155,945 |
| 3. | Photo Art | 53,668 |
| 4. | Video Productions | 219,700 |
| 5. | Odyssey Productions | 97,938 |

After consideration of the professional competence of personnel, depth and quality of staff, experience with similar projects, quality of presentation films, understanding of bridge projects, stability of firm, et cetera, the Committee was unanimous in their selection of Odyssey. Although Photo Art indicated the lowest cost, the Committee did not feel that their proposal was truly responsive in terms of what the State expected from the filming as indicated in the State's prospectus. When all aspects of the proposals and needs of the State were considered, Odyssey was selected as being best able to supply the most satisfactory service within a cost factor deemed reasonable by the Committee.

Cost breakdowns for each film, as supplied by Odyssey Productions, are attached as back-up material. The $360 per day shooting rate and associated $0.70 per foot for exposed film as a basis for progress payments during filming are comparable to rates paid by Willamette-Western Corp. and Bonneville Power Administration for similar work. (This is shown by R. W. Ellison's July 1, 1977 memo, a copy of which is attached.) A copy of our auditor's pre-award evaluation is also attached for your information. The provision for audit required by the evaluation has been added to the agreement.

A copy of the completed agreement will be forwarded to you for approval upon execution by all parties.

Very truly yours,

E. S. Hunter
Technical Services Engineer

Enc.

bc F. B. Klaboe
D. H. Moehring (enc.)
J. H. Versteeg "
Walt Hart
V. E. Skoog "
Jack Sollis "
A. C. Harwood "

RWE:dh ja

FORM 21-734-3030

# OREGON STATE HIGHWAY DIVISION

FILE:

INTER-OFFICE CORRESPONDENCE

Salem, Oregon

July 1, 1977

R. W. Ellison

**FROM:** R. W. Ellison
Administration Engineer,
Structural Section

**TO:**
Memo to the File

**SUBJECT:**
Columbia River (I-205) Bridge
Bridge 9555
Engineering and Construction Films
Cost Justification

Odyssey Productions, Inc. was selected by the Highway Division Consultant Selection Committee to make three films depicting the engineering and construction of the subject structure.

Odyssey's proposal quoted $28,458 for the first 20-minute film, $27,054 for the second 20-minute film, and $42,426 for the 45-minute film. This average $1,388 per minute for the 20-minute films and $1,061 per minute for the 45-minute film. As a basis for progress payments during the time of actual shooting, Odyssey quotes $360 per shooting day plus $0.70 per foot for exposed film. In order to justify these costs, I contacted the Bonneville Power Administration and Willamette-Western Corp., both of which have had films made by Odyssey.

Mr. George Smith of the Branch Lab in Bonneville's Ross Complex at Vancouver, Washington, informed me that Odyssey is just completing a film for them concerning their new 1100 KV test facility. He reports that the quality of work by Odyssey is excellent and that cooperation could not be better. They are very satisfied with Odyssey. Their agreement with Odyssey was negotiated after a very bad experience at attempting to receive formal bids for the work. They received many bids from individuals who had only a camera and no organization or suitable experience. It appeared that everyone with a movie camera thought he was a film producer. They had complaints filed when they would not award to the low bidder or others they deemed not qualified. It became so messy that Bonneville rejected all bids and went the negotiated contract route.

The negotiated contract calls for a 25-minute film with a cost of $40,000. This film is similar to ours in that most of the shooting was on location outdoors. The contract was signed in 1976 and quotes $340 per shooting day for a single crew and $680 day for a double crew. It also quotes $0.70 per foot for exposed film. The cost per minute is $1600 as compared to $1388 for our Columbia River (I-205) Bridge film. The cost per shooting day was $20 less for Bonneville than quoted for our film. This is 5.6% difference and is about equal to the inflation factor for the year. The cost of $0.70 per foot for exposed film is the same as we were quoted. Based on Bonneville's costs, it appears that Odyssey's quotes for our film are reasonable.

Howard Harris, OSHD Resident Engineer for the main channel pier contract, obtained the following information from Roger Brown of Willamette-Western, Inc., contractor for the main channel piers. Odyssey recently completed a film for Willamette-Western depicting the construction of the caisson pier for the railroad bridge across the Columbia River at Pasco, Washington. Included in the agreement between Odyssey and Willamette-Western was a quote of $340 per shooting day plus travel expense plus $0.70 per foot of exposed film. This, again, was a 1976 contract. Our 1977 agreement with Odyssey is in accord with these figures and appears reasonable.

RWE:dh

cc A. C. Harwood

STATE OF OR ON
HIGHWAY DIVISION

INT OFFICE MEMO

DATE: July 1, 1977

TO: Vernon E. Skoog
Controller

FROM: Dettmar W. Jones D. W. Jones
Staff Auditor

SUBJECT: Pre-award Evaluation
Odyssey Productions, Inc.
I-205 Columbia River Bridge Films

## Definition Statement

The contractor proposes to make three films of the major phases in constructing the referenced bridge, two of 25 minutes running time and one of 45 minutes. The maximum authorized cost is to be $150,333.

## Analysis

We note that Odyssey is referred to as "Contractor" and the nature of his work is clearly a physical production as distinct from consultation alone. For such a proposal, competitive bidding might be indicated. It is our understanding that OSHD Consultant & Selection Committee, in effect, selected Odyssey after receiving competitive proposals from four other sources. When this is documented it should satisfy State procurement procedures.

The cost proposal is basically the unit-price type with a lump sum minimum and provision for additional units (days, film footage) plus a firm 6% annual escalation ~~caluse~~ CLAUSE up to the maximum.

Only two cost factors were indefinite. In Exhibit "B", Business Proposal, Paragraphs "b" and "c" (Page 5), the costs for helicopter use and for OSHD graphics are not estimated, but they would be controlled by the maximum authorized cost of the project.

The arithmetic in Exhibit "B" is correct.

There is no provision for audit by OSHD and/or FHWA. This must be added to cover costs incurred over the minimum lump sum payment.

## Conclusion

The unit-price format is acceptable. While there is little documentation of the unit prices quoted, we may assume that the selection process indicated by comparison that they are reasonable in this specialized industry.

I recommend approval of the proposal subject to the addition of an audit provision.

APPROVED
V. E. Skoog
V. E. SKOOG, Controller
Oregon State Highway Division

DWJ:njc
cc: R. W. Ellison
R. J. Hacek

81-125-1307

**ODYSSEY PRODUCTIONS, INC.**

123 N.W. 2nd AVE. • PORTLAND, OREGON 97209 • (503) 223-3480

## FILM COST ESTIMATE

DATE 7/1/77

JOB NO.

CLIENT OREGON STATE DEPARTMENT OF TRANSPORATION

DESCRIPTION PHASE III - 45 Minute Film

TITLE COMPLETION OF PROJECT & COMPREHENSIVE FILM
COLUMBIA RIVER BRIDGE

## SUMMARY

| | | QUOTATION |
|---|---|---|
| A. | PRE-PRODUCTION | $ 1,354 |
| B. | CREW | 15,071 |
| C. | CAST | client |
| D. | SET OPERATIONS & EQUIPMENT | 1,478 |
| E. | TRAVEL, PER DIEM, FREIGHT, ETC. | 1,776 |
| F. | SOUND | 2,696 |
| G. | GRAPHICS - OPTICAL EFFECTS | 600 |
| H. | POST PRODUCTION | 10,950 |
| I. | PROCESSING | 8,501 |
| J. | VIDEOTAPE | |
| K. | OTHER | |
| | TOTAL | $ 42,426 |

NOTE: (All figures contain direct costs, burden, and approximately 10% profit)

RWdW - 7/1/77

ODYSSEY PRODUCTIONS, INC.
123 N.W. 2nd AVE. • PORTLAND, OREGON 97209 • (503) 223-3480

## FILM COST ESTIMATE

DATE ____________________

JOB NO. ________________

CLIENT ______________________________________

DESCRIPTION _________________________________

| | BUDGETED | |
|---|---|---|
| A. PRE-PRODUCTION | $ | |
| PREPARATION | 226 | |
| RESEARCH | 225 | |
| SCRIPT | 903 | |
| LOCATION SEARCH | | |
| CASTING | | |
| OTHER | | |
| OTHER | | |

Sub-Total $ 1,354

**ODYSSEY PRODUCTIONS, INC.**

123 N.W. 2nd AVE. • PORTLAND, OREGON 97209 • (503) 223-3480

| | | | BUDGETED | |
|---|---|---|---|---|
| B. | CREW: | | $ | |
| | DIRECTOR | | 7,535 | |
| | CAMERAMAN | | | |
| | ASS'T CAMERAMAN | | 7,536 | |
| | SOUNDMAN | | | |
| | PRODUCTION ASS'T | | | |
| | STILL PHOTOGRAPHER | | | |
| | GRIP | | | |
| | GRIP | | | |
| | OTHER | | | |
| | OTHER | | | |
| | Sub-Total | | $ 15,071 | |

| | | | | |
|---|---|---|---|---|
| C. | CAST: | | $ | |
| | TALENT;MAIN | | | |
| | EXTRAS | | | |
| | WARDROBE | | | |
| | OTHER | | | |
| | Sub-Total | | $ CLIENT | |

**ODYSSEY PRODUCTIONS, INC.**

123 N.W. 2nd AVE. • PORTLAND, OREGON 97209 • (503) 223-3480

| | | BUDGETED | |
|---|---|---|---|
| D. SET OPERATION & EQUIPMENT: | | $ | |
| CAMERA RENTAL | | 934 | |
| AIR FREIGHT (RENTALS) | | 388 | |
| LIGHTING | | 156 | |
| DOLLY | | | |
| SET CONSTRUCTION & STRIKE | | | |
| STAGE | | | |
| PROPS | | | |
| OTHER | | | |
| Sub-Total | | $ 1,478 | |

| | | | |
|---|---|---|---|
| E. TRAVEL, FREIGHT, PER DIEM: | | $ | |
| MILEAGE } | | 1,020 | |
| CAR/TRUCK RENTAL } | | | |
| TRAVEL - FARES | | | |
| PER DIEM | | 456 | |
| AIR FREIGHT | | | |
| OTHER | | 300 | |
| Sub-Total | | $ 1,776 | |

ODYSSEY PRODUCTIONS, INC.
123 N.W. 2nd AVE. • PORTLAND, OREGON 97209 • (503) 223-3480

| | | BUDGETED | |
|---|---|---|---|
| F. SOUND: | | $ | |
| VOICE/NARRATION | | 492 | |
| MUSIC & EFX SELECTION | | 492 | |
| STUDIO (RECORD, EDIT, MIX) | | 458 | |
| TRANSFER TO MAG | | 262 | |
| INTERLOCK-MIX | | 260 | |
| MATERIALS: ¼" TAPE<br>16mm MAG | | 256 | |
| ODYSSEY TIME | | 476 | |
| OTHER | | | |
| Sub-Total | | $ 2,696 | |

| | | | |
|---|---|---|---|
| G. GRAPHICS/OPTICAL EFFECTS | | $ 200 | |
| OPTICAL EFFECTS | | | |
| ANIMATION | | | |
| ART WORK/CAMERA CARDS | | 400 | |
| AIR FREIGHT | | | |
| OTHER | | | |
| Sub-Total | | $ 600 | |

# ODYSSEY PRODUCTIONS, INC.

123 N.W. 2nd AVE. • PORTLAND, OREGON 97209 • (503) 223-3480

| | | BUDGETED | |
|---|---|---|---|
| I. POST-PRODUCTION: | | $ | |
| EDITING | | 6,590 | |
| CONFORMING | | 3,100 | |
| OTHER | | 1,260 | |
| Sub-Total | | $ 10,950 | |

| | | | |
|---|---|---|---|
| I. PROCESSING: | | $ | |
| RAW STOCK | | 1,933 | |
| PROCESSING | | 1,258 | |
| WORK PRINT | | 2,686 | |
| ANSWER PRINT W/TRK | | 323 | |
| ANSWER PRINTS (TAPING) | | | |
| OPTICAL TRACK | | 202 | |
| INTERNEG/CRI | | 566 | |
| FIRST TRIAL | | 430 | |
| RELEASE PRINTS | | 485 | |
| REELS & BOXES | | | |
| OTHER | | 595 | |
| OTHER | | | |
| Sub-Total | | $ 8,501 | |

**ODYSSEY PRODUCTIONS, INC.**

123 N.W. 2nd AVE. • PORTLAND, OREGON 97209 • (503) 223-3480

| | | BUDGETED | |
|---|---|---|---|
| J. VIDEOTAPE: | | $ | |
| STUDIO TIME | | | |
| SOUND TRANSFER | | | |
| ODYSSEY TIME | | | |
| OTHER | | | |
| Sub-Total | | $ None | |

# ODYSSEY PRODUCTIONS, INC.

123 N.W. 2nd AVE. • PORTLAND, OREGON 97209 • (503) 223-3480

## FILM COST ESTIMATE

DATE 7/1/77

JOB NO.

CLIENT OREGON STATE DEPARTMENT OF TRANSPORATION

DESCRIPTION PHASE II - 20 Minute Film

TITLE SUPER STRUCTURE - COLUMBIA RIVER BRIDGE

## SUMMARY

| | | QUOTATION |
|---|---|---|
| A. | PRE-PRODUCTION | $ 1,354 |
| B. | CREW | 13,071 |
| C. | CAST | - |
| D. | SET OPERATIONS & EQUIPMENT | 1,478 |
| E. | TRAVEL, PER DIEM, FREIGHT, ETC. | 576 |
| F. | SOUND | 1,281 |
| G. | GRAPHICS - OPTICAL EFFECTS | 234 |
| H. | POST PRODUCTION | 4,133 |
| I. | PROCESSING | 4,927 |
| J. | VIDEOTAPE | |
| K. | OTHER | |
| | TOTAL | $ 27,054 |

NOTE: (All figures contain direct costs, burden, and approximately 10% profit)

RWdW - 7/1/77

**ODYSSEY PRODUCTIONS, INC.**

123 N.W. 2nd AVE. • PORTLAND, OREGON 97209 • (503) 223-3480

## FILM COST ESTIMATE

DATE ______________

JOB NO. ______________

CLIENT ______________

DESCRIPTION ______________

**BUDGETED**

| | | |
|---|---|---|
| A. PRE-PRODUCTION | $ | |
| PREPARATION | 226 | |
| RESEARCH | 225 | |
| SCRIPT | 903 | |
| LOCATION SEARCH | | |
| CASTING | | |
| OTHER | | |
| OTHER | | |

Sub-Total $ 1,354

# ODYSSEY PRODUCTIONS, INC.

123 N.W. 2nd AVE. • PORTLAND, OREGON 97209 • (503) 223-3480

| | | BUDGETED | |
|---|---|---|---|
| B. CREW: | | $ | |
| DIRECTOR | | | |
| CAMERAMAN | | 6,535 | |
| ASS'T CAMERAMAN | | | |
| SOUNDMAN | | 6,536 | |
| PRODUCTION ASS'T | | | |
| STILL PHOTOGRAPHER | | | |
| GRIP | | | |
| GRIP | | | |
| OTHER | | | |
| OTHER | | | |
| Sub-Total | | $ 13,071 | |

| | | | |
|---|---|---|---|
| C. CAST: | | $ | |
| TALENT;MAIN | | | |
| EXTRAS | | | |
| WARDROBE | | | |
| OTHER | | | |
| Sub-Total | | $ CLIENT | |

| | | BUDGETED | |
|---|---|---|---|
| D. SET OPERATION & EQUIPMENT: | | $ | |
| CAMERA RENTAL | | 934 | |
| AIR FREIGHT (RENTALS) | | 388 | |
| LIGHTING | | 156 | |
| DOLLY | | | |
| SET CONSTRUCTION & STRIKE | | | |
| STAGE | | | |
| PROPS | | | |
| OTHER | | | |
| Sub-Total | | $ 1,478 | |

| | | | |
|---|---|---|---|
| E. TRAVEL, FREIGHT, PER DIEM: | | $ | |
| MILEAGE | | 420 | |
| CAR/TRUCK RENTAL | | | |
| TRAVEL - FARES | | | |
| PER DIEM | | 156 | |
| AIR FREIGHT | | | |
| OTHER | | | |
| Sub-Total | | $ 576 | |

# ODYSSEY PRODUCTIONS, INC.

123 N.W. 2nd AVE. • PORTLAND, OREGON 97209 • (503) 223-3480

| | | BUDGETED | |
|---|---|---|---|
| F. SOUND: | | $ | |
| VOICE/NARRATION | | 234 | |
| MUSIC & EFX SELECTION | | 234 | |
| STUDIO (RECORD, EDIT, MIX) | | 217 | |
| TRANSFER TO MAG | | 124 | |
| INTERLOCK-MIX | | 124 | |
| MATERIALS: ¼" TAPE<br>16mm MAG | | 122 | |
| ODYSSEY TIME | | 226 | |
| OTHER | | | |
| Sub-Total | | $ 1,281 | |
| | | | |
| G. GRAPHICS/OPTICAL EFFECTS | | $ | |
| OPTICAL EFFECTS | | | |
| ANIMATION | | | |
| ART WORK/CAMERA CARDS | | 234 | |
| AIR FREIGHT | | | |
| OTHER | | | |
| Sub-Total | | $ 234 | |

# ODYSSEY PRODUCTIONS, INC.

123 N.W. 2nd AVE. • PORTLAND, OREGON 97209 • (503) 223-3480

| | | BUDGETED | |
|---|---|---|---|
| H. POST-PRODUCTION: | | $ | |
| EDITING | | 3,734 | |
| CONFORMING | | 399 | |
| OTHER | | | |
| Sub-Total | | $ 4,133 | |

| | | | |
|---|---|---|---|
| I. PROCESSING: | | $ | |
| RAW STOCK | | 1,120 | |
| PROCESSING | | 728 | |
| WORK PRINT | | 1,556 | |
| ANSWER PRINT W/TRK | | 187 | |
| ANSWER PRINTS (TAPING) | | | |
| OPTICAL TRACK | | 116 | |
| INTERNEG/CRI | | 336 | |
| FIRST TRIAL | | 255 | |
| RELEASE PRINTS | | 281 | |
| REELS & BOXES | | | |
| OTHER | | 348 | |
| OTHER | | | |
| Sub-Total | | $ 4,927 | |

| | | BUDGETED | |
|---|---|---|---|
| J. VIDEOTAPE: | | $ | |
| STUDIO TIME | | | |
| SOUND TRANSFER | | | |
| ODYSSEY TIME | | | |
| OTHER | | | |
| Sub-Total | | $ None | |

**ODYSSEY PRODUCTIONS, INC.**

123 N.W. 2nd AVE. • PORTLAND, OREGON 97209 • (503) 223-3480

## FILM COST ESTIMATE

DATE 6/24/77

JOB NO. 401-2877

CLIENT OREGON STATE DEPARTMENT OF TRANSPORTATION

DESCRIPTION PHASE I - 20 Minute Film

CONTACT PIER CONSTRUCTION

### SUMMARY

| | | QUOTATION |
|---|---|---|
| A. | PRE-PRODUCTION | $ 1,425 |
| B. | CREW | 13,759 |
| C. | CAST | - |
| D. | SET OPERATIONS & EQUIPMENT | 1,556 |
| E. | TRAVEL, PER DIEM, FREIGHT, ETC. | 606 |
| F. | SOUND | 1,348 |
| G. | GRAPHICS - OPTICAL EFFECTS | 246 |
| H. | POST PRODUCTION | 4,332 |
| I. | PROCESSING | 5,186 |
| J. | VIDEOTAPE | |
| K. | OTHER | |
| | TOTAL | $28,458 |

**ODYSSEY PRODUCTIONS, INC.**
123 N.W. 2nd AVE. • PORTLAND, OREGON 97209 • (503) 223-3480

## FILM COST ESTIMATE

DATE ______________________

JOB NO. ______________________

CLIENT ________________________________________

DESCRIPTION ________________________________________

| | BUDGETED |
|---|---|
| A. PRE-PRODUCTION | $ |
| PREPARATION | 238 |
| RESEARCH | 237 |
| SCRIPT | 950 |
| LOCATION SEARCH | |
| CASTING | |
| OTHER | |
| OTHER | |
| Sub-Total | $ 1,425 |

ODYSSEY PRODUCTIONS, INC.
123 N.W. 2nd AVE. • PORTLAND, OREGON 97209 • (503) 223-3480

| | | BUDGETED |
|---|---|---|
| B. | CREW: | $ |
| | DIRECTOR | |
| | CAMERAMAN 75 days | 6,879 |
| | ASS'T CAMERAMAN | |
| | SOUNDMAN | 6,880 |
| | PRODUCTION ASS'T | |
| | STILL PHOTOGRAPHER | |
| | GRIP | |
| | GRIP | |
| | OTHER | |
| | OTHER | |
| | Sub-Total | $ 13,759 |
| C. | CAST: | |
| | TALENT;MAIN | |
| | EXTRAS | |
| | WARDROBE | |
| | OTHER | |
| | Sub-Total | Client |

ODYSSEY PRODUCTIONS, INC.
123 N.W. 2nd AVE. • PORTLAND, OREGON 97209 • (503) 223-3480

| | BUDGETED |
|---|---|
| D. SET OPERATION & EQUIPMENT: | $ |
| CAMERA RENTAL special equipment for this period | 983 |
| AIR FREIGHT (RENTALS) | 409 |
| LIGHTING | 164 |
| DOLLY | |
| SET CONSTRUCTION & STRIKE | |
| STAGE | |
| PROPS | |
| OTHER | |
| Sub-Total | $1,556 |

| | |
|---|---|
| E. TRAVEL, FREIGHT, PER DIEM: | $ |
| MILEAGE | 442 |
| CAR/TRUCK RENTAL | |
| TRAVEL - FARES | |
| PER DIEM | 164 |
| AIR FREIGHT | |
| OTHER | |
| Sub-Total | $ 606 |

**ODYSSEY PRODUCTIONS, INC.**

123 N.W. 2nd AVE. • PORTLAND, OREGON 97209 • (503) 223-3480

| | | BUDGETED |
|---|---|---|
| F. | SOUND: | $ |
| | VOICE/NARRATION | 246 |
| | MUSIC & EFX SELECTION | 246 |
| | STUDIO (RECORD, EDIT, MIX) | 229 |
| | TRANSFER TO MAG | 131 |
| | INTERLOCK-MIX | 130 |
| | MATERIALS: ¼" TAPE<br>16mm MAG | 128 |
| | ODYSSEY TIME | 238 |
| | OTHER | |
| | Sub-Total | $1,348 |
| G. | GRAPHICS/OPTICAL EFFECTS | $ |
| | OPTICAL EFFECTS | |
| | ANIMATION | |
| | ART WORK/CAMERA CARDS | 246 |
| | AIR FREIGHT | |
| | OTHER | |
| | Sub-Total | $ 246 |

ODYSSEY PRODUCTIONS, INC.
123 N.W. 2nd AVE. • PORTLAND, OREGON 97209 • (503) 223-3480

| | | BUDGETED |
|---|---|---|
| H. | POST-PRODUCTION: | $ |
| | EDITING $700/day 15 days for 30 min | 3,931 |
| | CONFORMING | 401 |
| | OTHER | |
| | Sub-Total | $ 4,332 |
| I. | PROCESSING: | $ |
| | RAW STOCK | 1,179 |
| | PROCESSING | 767 |
| | WORK PRINT | 1,638 |
| | ANSWER PRINT W/TRK | 197 |
| | ANSWER PRINTS (TAPING) | |
| | OPTICAL TRACK | 123 |
| | INTERNEG/CRI | 354 |
| | FIRST TRIAL | 269 |
| | RELEASE PRINTS | 296 |
| | REELS & BOXES | |
| | OTHER | 363 |
| | OTHER | |
| | Sub-Total | $ 5,186 |

ODYSSEY PRODUCTIONS, INC.
123 N.W. 2nd AVE. • PORTLAND, OREGON 97209 • (503) 223-3480

## ODYSSEY PRODUCTIONS

## RATE SCHEDULES

| | | |
|---|---|---|
| I. | FILM OR AUDIOVISUAL PLANNING SERVICES | $ 25 per hour |
| II. | EDITING | $ 35 per hour |
| III. | CONFORMING | $ 20 per hour |
| IV. | MOTION PICTURE | |
| | A) PHOTOGRAPHY (1 MAN) | $ 360 per day<br>$ 200 - 1/2 day minimum |
| | B) DOUBLE SYSTEM PHOTOGRAPHY (2 MEN) | $ 500 per day<br>$ 300 - 1/2 day minimum |
| | C) DIRECTOR/PRODUCER | $ 550 per day |
| V. | STILL PHOTOGRAPHY | |
| | PHOTOGRAPHER WITH NIKON SYSTEM | $ 200 per day<br>$ 125 - 1/2 day minimum |

RWdW
5/12/75
Revision 6/16/76
2nd " 10/20/76

Misc.
C & A 6197

# AGREEMENT

THIS AGREEMENT, made and entered into this _________ day of July, 1977, by and between the State of Oregon, by and through its Department of Transportation, hereinafter called "State" and Odyssey Productions, Inc., an Oregon Corporation, hereinafter called "Contractor".

## WITNESSETH

RECITALS:

I.

State has determined it is necessary to make motion picture films depicting the engineering and construction of the East Portland Freeway (I-205) bridge across the Columbia River at Portland, Oregon.

II.

State has determined that it lacks the necessary personnel and facilities to perform this work. Upon due consideration by State of the personnel, equipment, experience, and skill, facilities and other qualifications of Contractor, State has determined that the Contractor can conduct the work as required by State.

NOW, THEREFORE, the premises being in general as set forth in the foregoing recitals, it is hereby agreed by and between the parties hereto as follows:

## THINGS TO BE DONE BY THE CONTRACTOR

I.

Contractor will make three films depicting the construction of the Columbia River (I-205) Bridge in accord with its proposal which is attached hereto, marked Exhibit A, and by this reference incorporated herein.

II.

All material prepared by Contractor shall be reviewed and approved by State. The time frame for the completion of the films shall be as set out in said Exhibit A.

III.

The total amount to be paid the Contractor under this agreement shall not exceed the sum of $150,333 without written approval of the State. A breakdown of the maximum cost is shown on Exhibit B which is attached and by this reference incorporated herein.

IV.

In accomplishing all work under this agreement, Contractor shall take instructions from and cooperate with State.

V.

Contractor shall supply State with itemized billings for work performed under this agreement prior to payment by State.

## GENERAL PROVISIONS:

I.

Contractor shall save and hold harmless the State of Oregon, the Oregon Transportation Commission, and the Department of Transportation, its members, officers, agents and employees, from all claims, suits or actions of whatsoever nature resulting from or arising out of the activities of Contractor, its subcontractors, agents or employees, under this agreement.

II.

Such provisions that are necessary to comply fully with the laws of the State of Oregon concerning public contracts and provisions to be included herein are hereby made a part of this agreement by reference, and Contractor shall comply with the obligations and other provisions of those laws the same as though those obligations were fully set out herein.

III.

Contractor will comply with all existing Federal and State regulations and statutes with respect to equal opportunity and affirmative action.

IV.

Contractor shall maintain all books, documents, papers, accounting records and other evidence pertaining to costs incurred and shall make such materials available for audit at their respective offices at all reasonable times during the contract period and for three years from the date of final payment under the contract for inspection by the State highway agency, Federal Highway Administration or any authorized representatives of the Federal Government and copies thereof shall be furnished if requested.

V.

Contractor shall not assign this agreement without the prior written consent of the State, and any such assignment without such prior written consent shall be grounds for termination of this agreement by State.

In the event of such termination, Contractor shall deliver to State all completed or partially completed satisfactory work and State shall pay Contractor for such satisfactory work. The amount paid shall be determined after taking into account not only the provisions for payment of work herein set forth but also Contractor's costs incurred for such satisfactory work, the nature of such satisfactory work, and any unpaid claims against Contractor of which State has notice in connection with Contractor's work under this agreement.

VI.

The provisions of this agreement and all rights and obligations hereunder shall extend to and bind the approved successors and assign of Contractor and any successor or assign of State.

VII.

State may terminate this agreement upon three days' notice for any breach of the terms of this agreement by Contractor.

VIII.

This contract and any amendments to this contract will not be effective until approved by the Executive Department.

IX.

It is certified by the requesting agency that sufficient funds are available to finance costs of this contract within the agency's current appropriation or limitations as shown on line 14 page 16 of the 1977-79 biennial budget, as amended, and by current allotment.

IN WITNESS, WHEREOF, the parties hereto have set their hands and affixed their seals as of the day and year first above written.

The Agreement was approved by the Oregon Transportation Commission on July 19, 1977, at which time the State Highway Engineer was authorized and directed to sign said Agreement for and on behalf of the Commission. Said authority is set forth in Volume ____, Page ____, Minute Book of the Oregon Transportation Commission.

STATE OF OREGON, by and through its
Department of Transportation,
Highway Division

APPROVED:

State Highway Engineer

E. S. Hunter

APPROVED AS TO FORM:

Assistant Attorney General and Counsel

ODYSSEY PRODUCTIONS, INC.

By ______________________
President

APPROVED: EXECUTIVE DEPARTMENT

By President

Title ______________________

93-061-3732
State Revenue I.D. Number

B 9995
Code Number

93-061-3732
Federal IRS I.D. Number

## EXHIBIT A

## PREAMBLE

Produce two 20-minute films, one for each of the two distinct phases of construction, and one 45-minute comprehensive film for the entire project which will:

a. Preserve an accurate and chronological record of this engineering and construction project, especially since the design and engineering of the I-205 Bridge will establish many U.S. "firsts";

b. Portray the project so that it is recognized as a unique technical achievement, and present it in a manner that will be appreciated by both lay and professional viewers.

AUDIENCE -

All three films would also be scripted and produced to achieve the maximum impact upon the lay audience: those citizens who will derive the most benefit from the Columbia River (I-205) Bridge project.

## WORKING PROPOSAL

## FILM #1 PIER CONSTRUCTION

| | Shooting Days | | |
|---|---|---|---|
| | Minimum | Medium | Maximum |
| A) First tugs & barges - Start of pier location, etc. | 2 | 3 | 4 |
| B) Caisson pier construction | 6 | 8 | 9 |
| C) Cofferdam pier construction | 5 | 6 | 7 |
| D) Other piers - sectional | 4 | 5 | 6 |
| E) Aerial photography - Site, approaches, construction, etc. | 2 | 3 | 3 |

| | Shooting Days | | |
|---|---|---|---|
| | Minimum | Medium | Maximum |
| F) "On Site" calls - by state, or Odyssey | 6 | 10 | 13 |
| Total | 25 | 35 | 42 |

FILM #2 SUPERSTRUCTURE CONSTRUCTION

| | Shooting Days | | |
|---|---|---|---|
| | Minimum | Medium | Maximum |
| A) Piers previously built and introduction | 2 | 3 | 4 |
| B) Extend pier shafts | 2 | 3 | 4 |
| C) Casting Yard | 5 | 7 | 8 |
| D) Transporting and placing segments | 5 | 7 | 8 |
| E) Horizontal & vertical control | 2 | 3 | 4 |
| F) Aerial - progress, construction, etc. | 3 | 4 | 5 |
| G) "On site" calls by State, or Odyssey. | 6 | 8 | 9 |
| Total | 25 | 35 | 42 |

FILM #3 OVERALL SUMMARY OF PROJECT

| | Shooting Days | | |
|---|---|---|---|
| | Minimum | Medium | Maximum |
| A) Preconstruction and post-construction aerial, approaches, traffic patterns, air and water navigation coordination with Washington, etc. | 2 | 3 | 4 |
| B) Government Island fill and roadway construction, environmental protection | 2 | 3 | 4 |
| C) S. Channel structure, piers, superstructure, substructure | 9 | 11 | 12 |
| D) Preconstruction engineering, survey control, weather conditions | 3 | 4 | 5 |

| | Shooting Days | | |
|---|---|---|---|
| | Minimum | Medium | Maximum |
| E) Foundation investigation, test pile, etc. | 2 | 3 | 4 |
| F) Illumination, bike path, paving, etc. | 2 | 3 | 4 |
| G) Opening to traffic, traffic use (vehicular, air, and water) | 1 | 2 | 3 |
| H) "On site" calls by State or Odyssey | 4 | 6 | 7 |
| Total | 25 | 35 | 43 |

Note: In addition to the above shooting for Film #3, footage from Films #1 and #2 will be incorporated in Film #3.

- All cinematography over a time span of 5 years

Using this approach for each of the two 20-minute films, Odyssey would have an ideal library from which to form the core of the final unified film, forty-five minutes in length.

Because of the nature of these films, the writing and approval of final scripts would occur during later stages of production. Scripting will evolve as each job proceeds, guided by the shooting sequence as selected by the client and Odyssey. This procedure assures us that the script will conform to and contain all the elements of drama and excitement stimulated by the construction itself. Above all, the development of the script must be flexible.

## BUSINESS PROPOSAL

(Based on 25 shooting days per film)

| | | |
|---|---|---|
| 1. | Twenty-minute film - Construction under the first contract - piers | $ 28,458 |
| 2. | Twenty-minute film - Construction under the second and third contract - superstructure | 27,054 |
| 3. | Comprehensive forty-five minute film - Final summary of project plus South Channel approaches, and supplementary cinematography | 42,426 |
| | Total | $ 97,938 |

RELATED COST FACTORS -

a) The above quoted lump sums include all costs for six prints each of the three finished films based upon 25 shooting days of photography for each film. Included costs are: cinematography, production, script, music, graphics, sound, narration, travel and per diem* , plus all labor, equipment, and other costs necessary to complete the films, except as hereinafter provided.

b) Additions: The estimate is based upon 25 shooting days of photography for each film. For each additional day over 25, the cost will be increased by $360 per shooting day plus the film exposed @ $0.70 per foot, (i.e., 32 shooting days -- added shooting cost of 7 days ($2520) plus 2000 ft. exposed film at $0.70 per foot ($1400), or a total of $3920 additional). The additional cost per shooting day and per foot of film shall be full compensation for all extra costs incurred from or caused by the additional shooting days including cinematography, production, script, music, graphics, sound, narration, travel, per diem,* plus all labor, equipment and other miscellaneous costs, except as hereinafter provided.

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* Per diem within Oregon and Washington site locations or Salem area.

b) Aerial Photography: Odyssey to supply all specialized film equipment. Client to supply helicopter. This can be done at minimal or no cost to State of Oregon by working with Bonneville Power Administration, the U. S. Coast Guard, the State Forestry Commission, or other public agencies with helicopters.

c) Graphics: The proposal includes standard titles and credits. These are all non-engineering graphics such as introduction or opening titles, introductions to engineering graphics or superimpositions thereon, all credits and recognitions (federal, state, consultant, etc.), film closing, etc. The State will supply, at their option, engineering graphics which can be used very effectively in the film. These include scale drawings, models, process drawings, flow charts, operations diagrams, construction diagrams, or anything of engineering origin.

d) Escalation: Because of the extended period of time in construction, and the potential variables in future costs, all estimates quoted herein are subject to 6% per year escalation as follows:

All billings made during 1977 will be at the quoted rates.
All billings made during 1978 will be at the quoted rate plus 6%.
All billings made during 1979 will be at the quoted rate plus 12%.
All billings made during 1980 will be at the quoted rate plus 18%.
All billings made in succeeding years add 6% per year in similar manner.

Exception: Ten percent of the total cost of each film shall not be subject to the above escallation provisions. That ten percent will be part of the final payment for each film.

## COLUMBIA RIVER (I-205) BRIDGE

## FILM SPECIFICATIONS

| | | |
|---|---|---|
| 1. | FILM .............. | 16 mm Eastman Color ECO or ECN |
| 2. | LENGTH ............ | 2-20 Minute Films - "Piers" & "Superstructure"<br>1-45 Minute Film - "Final Summary of Project" plus approaches, South Channel, and miscellaneous filming. |
| 3. | SCRIPT ............ | By Odyssey with final approval and input by client |
| 4. | GRAPHICS .......... | Standard titles and credits - Odyssey<br>Special graphics - client |
| 5. | QUANTITY........... | Six prints of each film are included in the contract |
| 6. | EXPOSED FILM ...... | All photographic film exposed in connection with the making of these three films (movies) shall be the exclusive property of the State of Oregon. |
| 6. | DUPLICATE RELEASE PRINTS............. | 20-minute films - $212.00 each<br>45-minute film - $440.00 each |
| 7. | PAYMENT SCHEDULE.. | (a) Pre-production planning, research, raw film stock, script preparation, location studies -- - Front-end costs .........$6,000 for each film<br>(b) Monthly progress payments - $360 per shooting day |

of photography, plus $0.70 per foot of film for raw film cost, processing, and one lite workprint, and production services.

(c) Balance of unit cost upon delivery of each completed film.

(d) Monthly progress payment will be made by State after receipt of itemized billing from Odyssey. Billing to show previous quantities and amounts, quantities and amounts for the period, and total quantities and amounts to date.

| | | |
|---|---|---|
| 8. | MONTHLY STATUS REPORT. (NARRATIVE) | Monthly status reports submitted to State by Odyssey shall show the status of the various aspects of each film, the work done during the month, and the work anticipated for the next month. |
| 9. | CINEMATOGRAPHY...... | All Odyssey staff |
| 10. | SOUND............. | Professional sound studios, plus actual "live" construction sound, lip sync, interviews, etc. |
| 11. | MUSIC ............ | Licensed ASCAP music |
| 12. | NARRATION ........ | Professional narrator to be selected from Odyssey talentfiles by State and Odyssey. |
| 13. | PACKAGING ........ | Heavy duty Plio-magic mailers, reels, cans, etc. |
| 14. | PRODUCTION SCHEDULE......... | Begin ...... 1977<br>Complete ... 1982<br>Each unit to be delivered within 60 days after State determined completion of construction phase. |

|  |  |  |
|---|---|---|
| 15. | TRAVEL AND PER DIEM........ | All for Odyssey account, within Oregon or Washington site locations, or Salem area. |
| 16. | SHOOTING DAY...... | Any calendar day or part thereof when, with the approval of the State, photographic film is exposed at the bridge location.<br>No shooting will be done without prior approval of the State. |

## EXHIBIT B

Columbia River (I-205) Bridge
Bridge 9555
Films Depicting Construction
Service Agreement with Odyssey Productions, Inc.

Computation of maximum payment under original agreement without written approval by the State:

**Film 1**

| | | | |
|---|---|---|---|
| 1977 quote using 25 shooting days Ⓐ | $28,458 | | |
| Possible 17 additional days @ $360/day Ⓑ | 6,120 | | |
| Possible 5000 additional feet of film @ $0.70/ft. | 3,500 | | |
| Subtotal | $38,078 | | |
| 10% of cost not subject to escalation Ⓒ | | $ 3,808 | |
| 90% of cost subject to escalation | | 34,270 | |
| Possible escalation costs at 6%/yr. beyond 1977 Ⓓ<br>Assume average of 9% escalation | | 3,084 | |
| TOTAL FILM NO. 1 | | | $ 41,162 |

**Film 2**

| | | | |
|---|---|---|---|
| 1977 quote using 25 shooting days | $27,054 | | |
| Possible 17 additional days @ $360/day | 6,120 | | |
| Possible 5000 additional feet film @ $0.70/ft. | 3,500 | | |
| Subtotal | $36,674 | | |
| 10% of cost not subject to escalation | | $ 3,667 | |
| 90% of cost subject to escalation | | 33,007 | |
| Possible escalation costs at 6%/yr. beyond 1977<br>Assume average of 18% escalation | | 5,941 | |
| TOTAL FILM NO. 2 | | | $ 42,615 |

**Film 3**

| | | | |
|---|---|---|---|
| 1977 quote using 25 shooting days | $42,426 | | |
| Possible 18 additional days @ $360/day | 6,480 | | |
| Possible 5000 additional feet film @ $0.70/ft. | 3,500 | | |
| Subtotal | $52,406 | | |
| 10% of cost not subject to escalation | | $ 5,241 | |
| 90% of cost subject to escalation | | 47,165 | |
| Possible escalation costs at 6%/yr. beyond 1977<br>Assume average of 30% escalation | | 14,150 | |
| TOTAL FILM NO. 3 | | | $ 66,556 |
| GRAND TOTAL ALL FILMS<br>(Maximum payment under original agreement) | | | $150,333 |

Ⓐ-Ⓓ per Odyssey proposal (Exhibit A)

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**OREGON STATE**
**HIGHWAY DIVISION**

HIGHWAY BUILDING • SALEM, OREGON • 97310

ROBERT W. STRAUB
GOVERNOR

NOTED
E. S. HUNTER

May 19, 1977

Mr. Glen L. Green
Division Administrator
Federal Highway Administration
P. O. Box 300
Salem, OR 97308

Prospectus for 16 mm Movie Film
Columbia River (I-205) Bridge
East Portland Fwy., I-205
Multnomah County

As a result of the meeting in Mr. George Bell's office on May 13, 1977, attended by Mr. Bell, Glen Green, Herb Schell, Walt Hart, Al Harwood, and Jack Davis, the following steps have been initiated to secure a suitable contract with a filmmaker to produce 16 mm sound movies of the construction of the Columbia River (I-205) Bridge:

1. A final draft of the Prospectus has been prepared, including changes suggested in paragraphs 2, 3 and 4 of your letter dated May 13, 1977, and as suggested in the meeting. A copy of the final Proposal is attached.
2. The Prospectus has been forwarded to several filmmakers with a cover letter explaining the selection process. A copy of the cover letter is attached.

Final selection of the filmmaker will be made by a selection committee after consideration of the several presentations expected. A copy of

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the final agreement detailing work to be performed and the associated costs will be sent to you for your review prior to final contract agreement with the selected filmmaker.

ORIGINAL SIGNED
WALTER J. HART
Walter J. Hart
Bridge Engineer

Attachments

cc H. S. Coulter /w/ attach.
E. S. Hunter /w/ attach.
A. C. Harwood /w/ attach.
George Bell
Jack Davis /w/ attach.

May 18, 1977

Mr. Steve Heiser
Odyssey Productions Inc.
123 NW 2nd Avenue
Portland, OR 97209

Dear Mr. Heiser:

Enclosed is a copy of a prospectus prepared by the Bridge Section of the Highway Division concerning a request for federal funds to film construction of the I-205 bridge across the Columbia River.

If after studying it, your firm is interested in bidding on the filming contract, we would suggest the following:

1. Prepare a dollar amount bid for the entire 5-year length of the contract, based upon your professional analysis of our requirements as specified in the prospectus. The bid, however, will only be one of several factors taken into account in the final awarding of the contract.
2. Prepare a 15-minute presentation that will describe your company's qualifications, and your ability to perform this task over a 5-year period. We'd also like to see a representative piece of your film that will enable us to judge the quality of some of your prior projects.

A selection committee will be formed within the next week or two to hear the presentation and award the final contract. I will be back in touch with you in the next several days to arrange a time and place for your presentation.

Please do not hesitate to call (378-6546) if you have any questions about this matter.

Sincerely,

George H. Bell
Special Assistant for Public Affairs

RECEIVED
MAY 18 1977
BRIDGE SECTION

cc: Walt Hart ✓

Similar letter sent to Warren Knight, Photo Art Commercial Studios; Ralph Budd, The Film Loft; Carl Wikman, VIDEO/TAPE; Don Blank, Video Productions

Form FHWA 121 (Rev. 5-73)

UNITED STATES GOVERNMENT

# *Memorandum*

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
Box 300
Salem OR 97308

DATE: May 13, 1977

In reply refer to: HBR-OR

SUBJECT: Oregon Project I-205-7(38)315
Columbia River Bridge
Filming the Columbia River Bridge Construction

FROM : G. L. Green, Division Administrator

TO : Mr. H. S. Coulter, State Highway Engineer

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cy Hunter
Harwood
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We have received Mr. Hart's April 22 letter transmitting the preliminary draft of the prospectus for filming the Columbia River I-205 Bridge. We understand that you intend to call in the prospective filmmakers and discuss the filming requirements with them. From the information gained at this meeting and the prospectus you will then request that the filmmakers submit their proposals for the work. Upon a detailed review of each proposal, an acceptable filmmaker will be selected. (Shouldn't this intent be included in the initial submittal to filmmakers?)

We find the prospectus generally acceptable; however, we offer the following comments for your consideration and possible incorporation into the prospectus:

1. We feel a statement is necessary to explain how an agreement will be worked up with the filmmaker.
2. We do not feel that the condensed 28 minute film should be indicated as a part of this contract.
3. In your preface you have not included the South Channel construction.
4. On page 4 under the Schedule of Work, we feel that the second and third paragraphs do not truly indicate how you will use the filmmaker in emergencies. We offer the following considerations:

> "Due to the nature of construction, the tentative schedule will be subject to adjustments and the filmmaker will keep in contact with the project engineer for these adjustments. There will be some emergency calls on short notice (24 hours) where the filmmaker will be asked to assist in recording an event. These emergencies will not be over 10 without renegotiation.

Under our item 4 the amount of short notice emergencies might be greater or less than 10 depending on how you feel. This would tie down such cost to the filmmaker.

In the agreement we would expect you to define with the filmmaker the total amount of acceptable film that is required (allowances for initial trials and a working relationship with the project people on what type of photography is necessary should be included). Please note because of the cost of the movie production indiscriminate uses (such as filming all normal details of construction) should not be allowed.

Please consider these comments in the final preparation of your prospectus, filmmaker meeting and agreement. We would like to review the cost and agreement prior to signing.

GLGreen

G. L. Green

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UNITED STATES GOVERNMENT

# *Memorandum*

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
Box 300
Salem OR 97308

DATE: April 18, 1977

In reply refer to: 1041BR

**SUBJECT:** Oregon Project I-205-7(38)315
Columbia River Bridge Documentary Filming

NOTED
E. S. HUNTER

**FROM :** G. L. Green, Division Administrator

To: Mr. H. S. Coulter, State Highway Engineer

Your letters of March 7 and April 13 adequately explain the need to document the construction of this major structure. Possible claims, construction procedures, and generally the state of art are sufficient reasons in this case for implementing such planned filming. We therefore will approve the costs as construction engineering provided these costs remain reasonable as explained in your letter of March 7.

We would like to review a preliminary copy of your invitation or prospectus to prospective filmmakers prior to solicitation. Please proceed with the next step of selecting a filmmaker. ✓

G. L. Green
G. L. Green

cc:
OSHD (W J Hart)

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**OREGON STATE
HIGHWAY DIVISION**

HIGHWAY BUILDING • SALEM, OREGON • 97310

ROBERT W. STRAUB
GOVERNOR

NOTED
E. S. HUNTE

April 13, 1977

Mr. Glen L. Green
Division Administrator
Federal Highway Administration
P. O. Box 300
Salem, OR 97308

Columbia River (I-205) Bridge
Documentary Filming
Bridge 9555

In accord with your letter of March 15, 1977, I am submitting additional information regarding the planned documentary films for the subject structure.

The Columbia River Bridge, within the framework of its five construction contracts, will be the largest highway project ever undertaken in this geographical area. The complexity of the work, coupled with the factor of size, makes project documentation an important consideration. A detailed visual record of construction activities is proposed in support of contract administration and possible future litigation and claim settlement. It will also provide coverage of any catastrophic event which might involve the project. This record will also be of value as documentation of the current state of the art for this type of bridge construction.

A cataloged record of still photography will be the principal vehicle for daily construction activity documentation. It is also proposed to provide project documentation of the principal construction activities through 16 mm movie coverage.

It is estimated that approximately 70 minutes of finished film footage will be required to adequately cover the principal construction activities. The phasing of the construction dictates that the film coverage should be broken into three increments.

The first increment would record the construction under the first contract, the north channel substructure. In order of priority, the coverage under this phase would be:

A DIVISION OF THE DEPARTMENT OF TRANSPORTATION

1. The construction of the Pier 13 caisson including excavation, precasting of caisson, transporting caisson, placing caisson, identification of Troutdale Formation, tremie concrete, and pier construction.

2. The construction of the Pier 12 cofferdam and pier including excavation, driving sheet piles, tremie concrete, dewatering and pier construction.

3. The construction sequence of a typical bell pier including excavation, pile driving, casting and placing bell segments, tremie concrete, and pier construction.

4. Limited coverage of the conventional pier construction at Piers 11 and 14 including excavation, pile driving, cofferdam construction, seal concrete, and general pier construction. It is estimated that approximately 20 minutes of finished film will be necessary to document construction under the first contract.

The second increment of movie coverage would summarize work under contracts 2 and 3....that is the Washington Approach spans contract and the North Channel Superstructure contract. The principal emphasis here will be on the mobilization, quality control, dimensional and survey control, and erection in the progressive growth of a typical segmental span. Also covered will be the precast yard set up, and casting, transporting, lifting and anchorage of segmental span units. A 20-minute coverage is also projected for this increment of work.

The third phase of the movie construction documentation would cover the total project. This would be a record which would encompass a portion of that covered under the phases 1 and 2 filming plus additional documentation of environmental areas, project scheduling, traffic impacts of the completed project, et cetera. Thirty minutes of finished film was assumed for Phase 3.

The State is not equipped or staffed to handle the projected filming. It is proposed to secure the expertise of an outside, private filmmaker to provide these services. The selection of the filmmaker will be made by the Consultant Selection Committee and would follow the established procedures for securing such services.

The documentary filmmaker will be required to provide the full range of services. That will include furnishing a completed film with narrative sound track. The State will provide technical assistance in the way of information and background for the narrative, scheduling items of coverage and general coverage format. The State will provide the filmmaker with a tentative listing of the items to be covered and subjects to be included. Prior notification of the need to film an item may, in many cases, be only one day's time. The progress of the filming will be monitored by the office of the Columbia River Bridge Project Engineer to insure coverage of all essential items.

A detailed description of the work required will be forwarded to you prior to actual engagement of the filmmaker.

Your approval of our request for federal aid funding of this work as outlined in my letter of March 7 is requested.

ORIGINAL SIGNED
R.W. ELLISON

R. W. Ellison
Acting Bridge Engineer

RWE:dh

cc E. S. Hunter /w/ copy of let. of 3/15/77
R. N. Bothman /w/ copy of let. of 3/15/77
W. J. Hart, Reg. 1 /w/ copy of lets. of 3/7 and 15/77
A. C. Harwood /w/ copy of let. of 3/15/77
George Bell /w/ copy of let. of 3/15/77
C. S. Gloyd /w/ copy of lets. of 3/7 and 15/77

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UNITED STATES GOVERNMENT

# *Memorandum*

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
Box 300
Salem OR 97308

DATE: March 15, 1977

In reply refer to: 1041BR

SUBJECT: Oregon Project I-205-7(2)303
Columbia River Bridge
Documentary Films

FROM : G. L. Green, Division Administrator

TO : Mr. H. S. Coulter, State Highway Engineer
ATT : Mr. W. J. Hart, Bridge Engineer

We received Mr. Ellison's letter of March 7, 1977 requesting the extent of our participation in three documentary films for the Columbia River Bridge. Such documentation will be a valuable tool in the event of future litigation on this mammoth structure; therefore, we feel it is eligible as a construction engineering cost.

✓ We cannot give a definite commitment of $100,000 to $125,000 for the preparation of these three films. What you forwarded does not give sufficient documentation for approval. We feel that a prospectus should be prepared and submitted for review and approval outlining specifically the type of work you intend to document, who controls the picture shooting, and how the script preparation review and editing will be accomplished.

Since the 28-minute film will be a compilation of the two 20-minute sections, it appears that the cost of shooting this film will be relatively little.

Please detail the scope of your March 7 letter by submitting a prospectus on how you intend to allocate the cost and how you will maintain control of the work.

G L Green

G. L. Green

Bolt

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Pls. prepare necessary data for submission to FHWA

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**OREGON STATE**
**HIGHWAY DIVISION**

HIGHWAY BUILDING • SALEM, OREGON • 97310

ROBERT W. STRAUB
GOVERNOR

March 7, 1977

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NOTED
E. S. HUNTER

Mr. Glen L. Green
Division Administrator
Federal Highway Administration
P. O. Box 300
Salem, OR 97308

Documentary Films
Columbia River (I-205) Bridge

We have had several discussions with Mr. Schell on the subject of federal aid participation in the documentary filming of the I-205 Bridge. A commitment is necessary on the maximum limit of federal participation so that we may solicit proposals to do the filming.

It is proposed to cover the bridge construction in three films. The first film would be approximately 20 minutes long and would cover the river pier construction and Government Island embankment. The second film, also 20 minutes long, would essentially cover the segmental superstructure construction. The third film would be 28 minutes long and would be a composite of films one and two plus the miscellaneous construction operations to show the project from beginning to opening of the bridge. A 28 minute running time was chosen for film three to make it suitable for television exposure.

The proposed film will present the opportunity to document the construction of one of the major bridges in this country. It will provide valuable information for use of engineers contemplating construction of similar structures or structures in similar locations. The pier work with several diverse operations will challenge the contractor through the value engineering incentive. The superstructure with the largest segmental sections to be used in this country will challenge his ingenuity. The filming of the project will advance the state of the art of bridge design and construction, it will provide a record in the event of litigation, and it will be of immeasurable value as a PR vehicle.

The conditions for film documentation of the I-205 Bridge construction are considerable different than those experienced on the

A DIVISION OF THE DEPARTMENT OF TRANSPORTATION

Fremont Bridge. This project will extend over a period of five years. A long-term commitment from the film producer will be required.

We believe that something approaching $100,000 will be required to produce the three films described herein. We need your commitment on the limit of federal aid participation in the filming. A suggested limit would be in the range of $100,000 to $125,000.

There have been six to eight film producers who have indicated an interest in this work. The consultant selection committee needs your early response. The film maker should be engaged by May if the early stages of construction are to be covered.

for R.W. Ellison
Walter J. Hart
Bridge Engineer

WJH:dh;smd

cc ✓E. S. Hunter
R. N. Bothman
George Bell
A. C. Harwood

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**OREGON STATE**
**HIGHWAY DIVISION**

HIGHWAY BUILDING • SALEM, OREGON • 97310

ROBERT W. STRAUB
GOVERNOR

March 1, 1977

Mr. Glen I. Green
Division Administrator
Federal Highway Administration
P. O. Box 300
Salem, OR 97308

NOTED
E. S. HUNTER

Documentary Films
Columbia River (I-205) Bridge

We have had several discussions with Mr. Schell on the subject of federal aid participation in the documentary filming of the I-205 Bridge. A commitment is necessary on the maximum limit of federal participation so that we may solicit proposals to do the filming.

It is proposed to cover the bridge construction in three films. The first film would be approximately 20 minutes long and would cover the river pier construction and Government Island embankment. The second film, also 20 minutes long, would essentially cover the segmental superstructure construction. The third film would be 28 minutes long and would be a composite of films one and two plus the miscellaneous construction operations to show the project from beginning to opening of the bridge. A 28 minute running time was chosen for film three to make it suitable for television exposure.

The conditions for film documentation of the I-205 Bridge construction are considerably different than those experienced on the Fremont Bridge. This project will extend over a period of five years. A long-term commitment from the film producer will be required.

We believe that something approaching $100,000 will be required to produce the three films described herein. We need your commitment on the limit of federal aid participation in the filming. A suggested limit would be in the range of $100,000 to $125,000.

**ORIGINAL SIGNED**
**R.W. ELLISON**

Walter J. Hart
Bridge Engineer

WJH:dh

cc E. S. Hunter
R. N. Bothman
George Bell
A. C. Harwood

RECEIVED
STATE HWY ENGR
MAR 1 '77
REFER TO
FOR
Info Inves R/D D/R Sign Act File

odyssey
productions inc.

28 January 1977

Mr. George Bell
Special Assistant for Public Affairs
104 Transportation Building
Salem, Oregon 97310

Subject: Preliminary Film Proposal - I-205 Columbia River Bridge

Dear Mr. Bell:

We understand from Mr. Hart that you are recovering from some recent illness and that you are able to spend a limited amount of time in the office. This must place you under a great deal of pressure and perhaps we can alleviate it somewhat by mailing this to you instead of presenting it to you personally.

At Mr. Hart's request on January 21 we have made a complete analysis of the Columbia River Bridge Project. Our purpose was to analyze the entire program and to prepare a preliminary business proposal.

Today Mr. Hart advised us that this film project will now be advertised and opened to all qualified film producers, and we certainly intend to do our best at that time.

Nevertheless, we would like to give you this preliminary analysis so that you will have a greater idea of Odyssey's capabilities. For this reason we submit our outline for the four films to be produced as a record of the Columbia River Bridge Project. It includes the following sections:-

1. A Statement of Purpose and Definition of Audiences

2. Concept and Treatment

3. Odyssey Experience in Construction Projects

123 northwest second avenue · portland, oregon · 97209 · phone (503) 223-3480

4. Credits and Resumes

5. Business Proposal

We are eager to work with you, and this proposal can be discussed further if our concepts, experience, and staff are best suited for your objectives.

We will be pleased to make additional presentations and we invite you and your associates to visit our studio, view sample reels, and meet our staff.

Please call either Mr. Steve Heiser or me if you have any questions.

Yours very truly,

ODYSSEY PRODUCTIONS, INC.

RW deWeese

R. W. deWeese
President

RWdW:c
cc: Mr. Walter J. Hart

## R. W. deWEESE

## ACTIVITIES

1. Odyssey Productions, Inc: President - Director
1. Oregon Metallurgical Corporation: Director
3. Cascade Corporation: Director
4. First State Bank: Director
5. Evans Products Company: Director
6. Asia-Pacific, Inc: President and Director
7. KATU-TV - KOMO-TV (ABC): Director
8. Portland Chamber of Commerce: Director and Former President Chairman, Mineral Resources Committee - World Trade Committee - Editorial and Publishing Board
9. Portland Art Association - Trustee - Finance Committee - School Committee
10. Mensa - U.S.A. and Mensa International: Member
11. Portland-Sapporo (Sister City Affiliate): Director
12. KBPS Radio (Public Broadcasting Affiliate: Director - Finance Committee
13. Japanese Garden Society of Oregon: Director, Executive Committee and Chairman of the Board
14. State Department of Geology and Mineral Industries: Chairman, Board of Governors
15. Foundation for Oregon Research and Education: Director
16. Stanford University Associates - Northwest Region
17. Western Environmental Trade Associates: Director
18. Pacific International Livestock Exposition: Director
19. Consumer Credit Counseling of Oregon, Inc: Director

RWdW:c
Rev. 3/8/76

# RESUME

NAME: THOMAS K. NASH

POSITION: PRODUCER/MARKET DEVELOPMENT

EDUCATION: B.A., Creative Writing, Northwestern University, Evanston, Illinois, 1966

J.D., Stanford Law School, Palo Alto, California, 1969

Admitted to State Bar of California

EXPERIENCE: Executive, Business Affairs, Columbia Pictures, Hollywood, 1969-72.
Function: Negotiation of agreements relating to the production of motion pictures (covering the acquisition of literary properties, the engagement of producers, directors, writers, actors and other personnel); Supervision of the drafting of aforesaid agreements; general studio administrative functions (budget and cost control, maintenance of comprehensive records concerning all projects in development or production, co-ordination of the activities of departmental personnel, maintenance of effective working relationships with those persons engaged, in creative and other capacities, in connection with projects).

Numerous personal entrepreneurial ventures, including real estate and restaurant and motion picture theatre operations.

Several projects involving the independent financing and production of motion pictures; knowledge of venture capital arrangements, tax shelters and tax deferral plans, and various production and distribution structures.

Extensive writing experience in connection with a wide variety of scripts and creative proposals.

# RESUME

NAME: STEPHEN R. HEISER

POSITION: PRODUCER/DIRECTOR

DATE OF BIRTH: 10/4/41

EDUCATION: B.A. Dartmouth College, Hanover, New Hampshire, 1963

B.F.A. Art Center College of Design, Los Angeles, California 1967

EXPERIENCE: Art Director - Kenyon and Eckhardt Advertising (Blatz, Fort Howard Paper Company, Gallo Wine).

Assistant Photographer - S. Heiser Photography

Cameraman/Editor/Animator - Argonne National Laboratory

Cameraman/Animator for USAEC's Film Exhibit at 1971 "Atoms for Peace" Conference - Geneva, Switzerland - 13 films.

Gold Medal, Industrial Photography Magazine Film Festival.

Cameraman/Editor/Animator on seven other major films for USAEC -- two Gold Medals, U.S. Industrial Film Festival, Chicago.

Free-lance Cinematographer on film, "The Sculpture of Gordon Barlow" -- Silver Medal, Atlanta Film Festival.

Producer/Cinematographer on film "Aunt Arie" --Director's Choice, Sinking Creek Film Celebration.

Art Supervisor - Leo Burnett Advertising, Chicago. Creative Supervisor on numerous national accounts, including United Air Lines, Lava Soap, Parliament Cigarettes, Schlitz Beer, American Dairy Assn., Extend Mouthwash. Conceived and produced 1973-74

United Ski Campaign, 1974 Vacation Campaign, 1974-75 Ski Campaign, numerous newspaper and magazine ads, seven national T.V. commercials, and one film short.

Art Director - McCann-Erickson, Portland, Oregon. Directed such clients' work as Georgia-Pacific, Port of Portland, Western Wood Products Assn.

Technically acquainted and proficient with most phases of double system filming, sound recording, mixing, animation (operated computerized stand) and editing (Moviola and KEM horizontal bench).

# RESUME

NAME: ARTHUR E. ELLIS

DATE OF BIRTH: 3/8/37

POSITION: CINEMATOGRAPHER

EDUCATION: Attended Naval Schools of Photography Class A and Class C Motion Picture. Studied "Statistical Quality Control" at Rochester Institute of Technology, Rochester, New York. Studied 35mm format photo-journalism at Leica Technical Center, E. Leitz, New York, N.Y.

Served with the Navy's famed combat camera group in the Pacific documenting the shelling of Quemoy and Matsu, the 1962 Nuclear Operations in the Pacific and field operations in Vietnam.

CURRENT: Chief Cinematographer for Odyssey Productions, Inc.

| | |
|---|---|
| 1971-1974 | News and Production Cameraman for KHON-TV in Honolulu and KOIN-TV in Portland, Oregon. |
| 1967-1971 | Motion Picture Lab Manager and Director of Photography for KGMB-TV's Project 9, a five-man documentary team. Filmed one-hour documentary on Operation Deep Freeze with the National Science Foundation and one-hour documentary on "Hawaii Reefs" and "Pelagic Fish". |
| 1966 | Customer Service Representative for Technicolor |
| 1964-1966 | Freelance in Asia, Tahiti and Hawaii |
| 1954-1964 | Photographer's Mate in U.S. Navy |

Have a thorough working knowledge of cinematography, from aerial (helicopter and fixed wing), to underwater (Certified Navy Advanced Diver).

Have a thorough knowledge of laboratory processes and techniques.

Have utilized: Eclair, Arriflex, Bell & Howell, Mitchell, Cinema Products CP-16, Auricon conversions, 16 and 35mm motion picture cameras, Burns & Sawyer, Underwater Housing for Arriflex, Samson Hall for Bell & Howell, Bolex 16 Underwater, and Bell Helmet cameras.

# RESUME

NAME: MICHAEL L. McNAMARA

DATE OF BIRTH: 3/4/50

EDUCATION: New York Institute of Photography, New York, New York, 1971. Advanced Motion Picture Production writing for film & television

Rochester Institute of Technology - Rochester, New York, 1969-70. Professional Photography Curriculum.

EXPERIENCE: Producer-Director - Director of Photography, Account Executive - International Media Systems, Colorado Springs, Colorado. Acted in range of capacities for this multi-media production company including work on television commericials, documentaries, slide shows, filmstrips and printed materials.

Work .lso included editing, writing, and still photography. Clients include McDonald's Hamburgers, Capp Homes, Silva Compass, Johnson Wax, Eastman Kodak, The Navigators, National Hiking and Ski Touring Association, and ESEA Title 6 and Title 3 Federal Grants.

Art Director/Production Director - A Light In the Forest Advertising - Colorado Springs, Colorado.

Commercial Film Director - KKTV, Colorado Springs, Colorado. All directing, photography and editing for commercial productions.

Still photographer, State University of New York; responsible for all still photography and related areas (T.V. Graphics, Slide Shows, etc.)

**AWARDS:** Pikes Peak Advertising Federation and Denver Art Directors Club.

**EQUIPMENT:** Arriflex BL, M, and S; Bolex EBM, SBM; CP-16, Avricon, Nagra, Shotgun & Wireless Mics; Single and Double System Sound, Crystal Sync Modes, Red Lake Hi-Cam, All Current Film Editing Techniques and Video Tape Production Techniques; All Still Photography Techniques and Equipment to 8"x10" format; Sound Recording and Mixing.

# RESUME

**NAME:** Douglas A. Crane

**DATE OF BIRTH:** 5/26/49

## EXPERIENCE:

1974 to Present - Producer/Director, Multi-Media, Odyssey Productions, Inc., 123 N.W. 2nd Avenue, Portland, Oregon 97209.

1973-1974 - Faculty, Department of Education, Lewis & Clark College, Portland, Oregon. Graduate and undergraduate educational media courses.

1972-1974 - Media Consultant, Arizona State University. Direction of diverse educational productions for local, national, and international distribution. Director of media workshops for faculty in-service training. Assistant to the Director of Audiovisual Services, involved in all phases of operation.

1971-1972 - Graduate Teaching Assistant, Department of Educational Communications & Technology, Arizona State University, Tempe, Arizona; Instructional Media Development courses for pre-service teachers.

## EDUCATION:

1973 - Advanced Graduate classes in Educational Technology and Audiovisual Education, Arizona State University, Tempe, Arizona.

1972 - Masters of Arts. Department of Educational Technology and Audiovisual Education, Arizona State University, Tempe, Arizona.

1971 - Bachelor of Science, Lewis & Clark College, Portland, Oregon.

1969 - Associate Arts, College of the Redwoods, Eureka, California.

DIRECTOR OF WORKSHOPS, 1973:

- AAAVED State Convention, Phoenix, Arizona - "Multimedia Messages."
- AECT National Convention, Las Vegas, Nevada - "Producing Multi-Image Presentations."
- AECT National Convention, Las Vegas, Nevada - 3 Multi-Image presentations shown at "Multimage"

PUBLICATIONS:

"From Photographs to Line Drawings Using Photosketching", Arizona Audiovisual Journal, Spring 1972.

"Meeting the Challenge", Arizona Audiovisual Journal, Fall '73.

"Producing Multi-Image Presentations", Arizona State University, Tempe, Arizona
First Printing - April, 1973
Seventh Printing - November, 1975

"Creative Photography: Camera Series", (Instructional Guide to a series of six color sound filmstrips), Arizona State University, Tempe, Arizona, July, 1973.

"Creative Photography: Camera and Darkroom Manual", Arizona State University, May, 1974.

# RESUME

**NAME:** Marc Bowen

**DATE OF BIRTH:** 5/21/53

**EXPERIENCE:**

August '75 to Present - Photographer/Production Manager
Odyssey Productions, Inc.
123 N.W. Second Avenue, Portland, Oregon

1975 - Photographer, Oregon State University, Family Life Department - 2 1/4 format, Black and White, 35mm Color Slides, Video Tape of Child Care Centers.

1974 - Photographer, Thomas R. Miles, Consulting Engineer, Portland, Oregon. Documentary, Technical and Public Relations Photography - 2 1/4 format, Black and White Color Prints, 35mm Color Slides, 16mm Film of Grass Seed Industry and Grass Straw Burning in the Willamette Valley for publication in newspapers and used by Engineers, Legislators, and the Grass Seed Industry.

1971 - Photographer, Rehabilitation Institute of Oregon, Portland, Oregon - 2 1/4 format, Black and White.

Public Relations Photography for news and Brochure Publications. A personal client for five years.

1970 - 1975 - Freelance Photography in both 2 1/4 and 35mm formats. Weddings, Portraits, Technical and Documentary Photography.

## RELATED ACTIVITIES:

Phorographs exhibited at White Bird Gallery, Cannon Beach, Oregon.

Active in the Interim Workshop/Photographers in the Portland area.

## EDUCATION:

Oregon State University, Corvallis, Oregon. Emphasis in Photography and Art.

University of Oregon, Eugene, Oregon. Photography emphasis in both Journalistic and Artistic.

Portland State University, Portland, Oregon. Photography emphasis.

1979 Columbia R. Br. (N. Channel 8905
Superstruc.) I-205
Sverdrup & Parcel #4

CSA 3835 10-6-70 11-23-73

8905
Sp.

L

VICTOR ATIYEH
GOVERNOR

*Department of Transportation*
HIGHWAY DIVISION
TRANSPORTATION BUILDING, SALEM, OREGON 97310

In Reply Refer to
File No.:
CON 5
8905

May 18, 1982

TO: Dale E. Wilken
Division Administrator
Federal Highway Administration

FROM: ORIGINAL SIGNED
WALTER J. HART
Walter J. Hart, P.E.
Bridge Engineer

SUBJECT: Consultant Agreement - Design of Columbia River (I-205) Bridge

With the impending completion of the I-205 Bridge over the Columbia River, the design work for this structure is complete. As a result, we are preparing to make final payment to Sverdrup & Parcel and Associates for the work they did under the design agreement dated September 30, 1970, with amendments and additions. A review of these documents indicates that all phases of their work has been satisfactorily completed.

If your review indicates agreement with our analysis, please endorse one copy of this letter and return for our files.

JEC:jrb
Enclosure
cc: E. S. Hunter
D. H. Moehring

CONTRACT EXECUTION APPROVED:

_______________________________________
Federal Highway Administration      Date

RECEIVED
TECHNICAL SERVICES
MAY 19 '82
REFER TO

FOR

| Info | Inves | R/D | D/R | Sign | Apr | File |
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Form 734-3122

U.S. DEPARTMENT OF TRANSPORTATION — FEDERAL HIGHWAY ADMINISTRATION

#8775

[illegible]

# LETTER OF APPROVAL AND OR AUTHORIZATION

FEDERAL AID PROJECT NO.
I[illegible]05-7(38)315&I-205-7(66)315

STATE PROJECT NO.
See below

COUNTY NAME
Multnomah

PROGRAM STAGE (Check)
☐ 1. ☐ 2.

1-22-80

PROGRAM NO.

ITEM NO.
71004 & 80403

FROM:

G. L. Green
Division Administrator
Salem, Oregon

TO:

Mr. H. S. Coulter
STate Highway Engineer
Salem, Oregon

RECEIVED
STATE HWY ENGR
JAN 23 '80
REFER TO
[illegible]
FOR

| Info | Invest | C/O | D/R | S&m | Act | File |
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| | | | | | | |

DATE PS&E APPROVED

DATE AUTHORIZATION EFFECTIVE
1-21-80

FEDERAL ROUTE NUMBER
Interstate 205

STATE ROUTE NUMBER
Primary 64

GENERAL LOCATION:

Columbia River Bridge - N. Channel Superstructure

GENERAL DESCRIPTION OF WORK:

Supplemental consultant agreement

YOU ARE AUTHORIZED TO PROCEED WITH THE WORK CHECKED BELOW

PRELIMINARY ENGINEERING TO DETERMINE
☐ LOCATION ONLY

PRELIMINARY ENGINEERING FOR SURVEY AND PLAN
☐ PREPARATION

☒ OTHER (*Specify*) See below

☐ ACQUISITION OF RIGHT-OF-WAY

CONSTRUCTION - ADVERTISE FOR RECEIPT
☐ OF BIDS

☐ CONSTRUCTION - PROCEED ON AN AGREED PRICE AND/OR FORCE ACCOUNT BASIS

REMARKS

As requested in Mr. Swan's letter of 1-9-80 I approve the Supplemental Agreement with Sverdrup & Parcel and Associates which combines Section 1A and 1B in the original agreement to a new section 1D for accounting purposes only, there is no change in scope of work or any additional funds required. A signed copy of the agreement is returned herewith.

DATE
1-22-80

SIGNATURE OF APPROVING OFFICIAL
G. K. H[illegible]

TITLE
for Division Administrator

FORM PR-1240 (REV. 8-70) EXISTING STOCKS OF FORM PR-1240 (REV. 6-68) WILL BE USED

☆ U.S. GOVERNMENT PRINTING OFFICE: 1978-721-819

8905
Rc Powell.

RECEIVED
JAN 8 1980
CONSTRUCTION BRANCH
Keasey
Jackmond
Hopkins
Williams
Johnsen
Glenn
Widmer
Gebauer
Church

## OREGON STATE HIGHWAY DIVISION

INTER-OFFICE CORRESPONDENCE

FILE:

Portland, Oregon
January 7, 1980

FROM: ALLAN C. HARWOOD
Allan Harwood

SUBJECT: Columbia River Bridge
North Channel Superstructure
Contract No. 8905

TO: C. T. KEASEY

I have been advised by Sverdrup & Parcel that effective January 1, 1980 the fee for Ben Gerwick's services on the North Channel project will be $102/hr. This is the rate we paid Gerwick on the South Channel for services provided during 1979.

Our agreement with Ben for the South Channel provides for review of that rate each year so it may be even higher in 1980.

Our consulting agreement with S & P does not specify a rate for the consulting services provided by Gerwick. We have been paying $75 per hour which was the rate established in 1976. An annual increase of 8% from the $75 rate in 1976 comes out just over $102/hr.

As further justification of the new rate I am enclosing a copy of Exhibit A of the consulting agreement and the rate justification offered for the South Channel.

With your concurrence I will advise Sverdrup & Parcel of approval of the rate of $102/hr. for Gerwick's services during 1980.

Attachment

APPROVED
T Keasey 1/8/80
Asst. State Hwy. Engr.
(Constr. & Mat'ls.)

cys. to Allan Harwood
H.S. Coulter
Walt Hart
Ed Hardt
Accounting (Original)
files

RECEIVED
STATE HWY ENGR
JAN 9 '80
REFER TO
FOR

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## EXHIBIT A

Personal Rates:

$102.00 per hour, including travel time, but not to exceed 8 hours in any one calendar day.

Services of Harold V. Anderson, Consulting Engineer, Associate, $64.00 per hour.

Non-personal:

Reimbursement at cost for all travel expenses, including board and lodging and necessary out-of-pocket expenses, and long distance telephone calls, telexes, cables, et cetera.

All air travel shall be first class.

Reimbursement at cost for reproduction services.

Rates subject to review and adjustment on January 1, 1979 and yearly thereafter to reflect changes in costs commensurate with general level of changes in the State of Oregon for the period in question.

Estimate of Cost

Job Site Inspection:

| | | |
|---|---|---|
| Personal: | | |
| Consultant: 250 hours @ $102 | = | $25,000 |
| Travel & Subsistence | = | 4,175 |
| Subconsultant: 80 hours @ $64 | = | 5,120 |
| Travel & Subsistence | = | 650 |
| Equipment rent, telephone, misc. | = | 1,625 |
| Special Problems, Plan Review, Etc: | | |
| Consultant: 80 hours @ $102 | = | 8,160 |
| Subconsultant: 40 hours @ $64 | = | 2,260 |
| Equipment rent, telephone, misc. | = | 1,000 |
| Total Estimated Amount | = | $49,000 |

# I-205 COLUMBIA RIVER BRIDGE

## SOUTH CHANNEL CROSSING

### Rates for Services

Enclosed is my standard form of agreement with the rates currently being changed for agreements for which the work will be performed in 1979.

The $75.00 per hour rate of my present agreement was that in effect in 1976. My standard rate was increased to $87.50 in 1977 to reflect the increase in costs that year. For 1979, on new projects my standard rate will be $125.00 per hour ($1000. -per day) as shown on the attached agreement.

However, in view of the continuity of this work and the long term of previous involvement with the project in prior years, I propose to apply only the escalation in overhead costs, resulting in a rate of $102.00 per hour for this particular agreement.

This rate will be in effect for the full year 1979.

#9705
[illegible]

AGR 6

Paul Anderson
Bridge Section

December 31, 1979

C. W. Head
Commission Services

MISC. CONTRACTS and
AGREEMENTS No. 3835

As requested, attached are two copies of an agreement (supplemental) with Sverdrup & Parcel & Associates, Inc., in connection with the I-205 Bridge. It is my understanding that you will transmit a copy to Sverdrup & Parcel.

We have retained a fully executed copy for the Transportation Commission's files.

cc Al Harwood (agree. att.)

fkn
Atts.

STATE OF OREGO
HIGHWAY DIVISION

INTEROF CE MEMO

TO: MEMO

DATE: December 11, 1979

FROM: H. S. Coulter
State Highway Engineer

SUBJECT: Supplemental Construction Agreement
I-205 Bridge

On this date, Chairman Yturri approved a supplement to the consultant construction agreement with the firm of Sverdrup & Parcel and Associates, Inc., in connection with the I-205 Bridge.

This supplemental agreement modifies the original construction agreement of June 21, 1977, to consolidate Sections 1A and 1B of that agreement. The agreement does not change the total cost.

cc Anthony Yturri
F. B. Klaboe
C. W. Head
W. J. Hart
E. L. Hardt
J. L. Sollis

Exec VP approved
[illegible]

12/13/79
Supplement [illegible]
to have Exec. Dept
approve per Sollis

81-125-1387

Consult.

STATE OF OREGON

INTEROFFICE MEMO

TO: Al Harwood
Columbia River Projects Engineer

DATE: September 26, 1979

ORIGINAL SIGNED
R.W. ELLISON

FROM: Robert W. Ellison
Assistant Bridge Engineer

SUBJECT: Columbia River (I-205) Bridge
N. Channel Bridge
Consultant Construction Agreement
Revision-Supplemental Agreement

NOTED
E. S. HUNTER

Attached for your negotiation with Sverdrop & Parcel is a rough draft supplemental agreement which revises the consultant construction agreement dated June 21, 1977. As you requested, the revision combines Section I-A (Evaluate value engineering proposals) and Section I-B (Review shop drawings) into a single Section I-D (Evaluate value engineering proposals and review shop drawings).

This supplemental agreement has preliminary approval from Jack Sollis and conceptual approval from FHWA.

RWE:df
Attachments

cc: Ed Hunter
Jack Sollis
Ed Hardt
Vernon Skoog

RECEIVED
TECHNICAL SERVICES
SEP 27 '79
REFER TO
FOR

| Info | Inves | R/D | D/R | Sign | Act | File |
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8905
3-7-79
[illegible]

U.S. DEPARTMENT OF TRANSPORTATION · FEDERAL HIGHWAY ADMINISTRATION

# LETTER OF APPROVAL ANL R AUTHORIZATION

FEDERAL AID PROJECT NO. I-205-7(66)315

STATE PR T NO. See below

COUNTY NAME Multnomah

PROGRAM STAGE (Check) ☐ 1. ☐ 2.

PROGRAM NO.

ITEM NO. 80403

**FROM:**
G. L. Green, Division Administrator
Salem, Oregon

**TO:**
Mr. H. S. Coulter
State Highway Engineer
Salem, Oregon

RECEIVED
STATE HWY ENGR
MAR 14 '79
REFER TO
Mack[illegible]
FOR

| Info | Inves | R/D | D/R | Sign | Act | File |
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DATE PS & E APPROVED

DATE AUTHORIZATION EFFECTIVE See below

FEDERAL ROUTE NUMBER Interstate 205

STATE ROUTE NUMBER Primary 64

GENERAL LOCATION:
Columbia River Bridge - North Channel Superstructure

GENERAL DESCRIPTION OF WORK:
Consultant Agreement - Construction Engineering

YOU ARE AUTHORIZED TO PROCEED WITH THE WORK CHECKED BELOW

☐ PRELIMINARY ENGINEERING TO DETERMINE LOCATION ONLY
☐ PRELIMINARY ENGINEERING FOR SURVEY AND PLAN PREPARATION
☒ OTHER (Specify) Consultant Agreement
Sverdrup & Parcel and Associates, Inc.-
Phase II
☐ ACQUISITION OF RIGHT-OF-WAY
☐ CONTRUCTION - ADVERTISE FOR RECEIPT OF BIDS
☐ CONSTRUCTION - PROCEED ON AN AGREED PRICE AND/OR FORCE ACCOUNT BASIS

REMARKS

As requested in Mr. Swan's letter of February 15, 1979, you are authorized, effective with date of award of contract for construction, to proceed with Phase II under the approved Agreement with Sverdrup & Parcel & Associates, Inc., at a total cost of $318,000 - Federal Funds limited to $293,500. [Agreement approved under Project I-205-7(38)315.]

DATE 3-9-79

SIGNATURE OF APPROVING OFFICIAL G. K. H[illegible]

TITLE for Division Administrator

FORM PR-1240 (REV. 8-70) EXISTING STOCKS OF FORM PR-1240 (REV. 6-68) WILL BE USED

☆ U.S. GOVERNMENT PRINTING OFFICE: 1976—828-787

8905

9

STATE OF OREGON

INTEROFFICE MEMO

TO: General Files

DATE: August 8, 1977

FROM: C. W. Head, Manager
Commission Services
C.W.H.

SUBJECT:

MISC. CONTRACTS and
AGREEMENTS No. 3835

On this date we handed to the Structural Design Section a fully executed copy of the consultant agreement with Sverdrup and Parcel & Associates, Inc. for engineering work during the construction phase of the North Channel Sections of the I-205 Bridge.

The Structural Design Section is sending the fully executed copy to Sverdrup and Parcel & Associates, Inc.

A copy of this agreement is also being sent to the Washington Department of Highways, Highway Administration Building, Olympia, WA 98504, and to Mr. R. L. Carroll, District Engineer, Washington Department of Highways, P. O. Box 1717, Vancouver, WA 98663.

A fully executed copy is being retained for the Transportation Commission's files and the individuals listed below are also receiving a copy of this agreement.

cc: Walt Hart
V. E. Skoog
Al Harwood
E. L. Hardt
FHA (two copies enclosed)

#905

mult.

FORM 81-734-3030

OREGON STATE HIGHWAY DIVISION

INTER-OFFICE CORRESPONDENCE

FILE:

Salem, Oregon

July 25, 1977

[illegible] SIG

WALTER J. HART

FROM: Walter J. Hart
Structural Engineer

TO: Mr. C. W. Head
Manager
Commission Services

SUBJECT:
Columbia River Bridge
Consultant Construction Agreement

The following is offered as additional background in support of the request for approval of the consultant agreement between the State and Sverdrup & Parcel and Associates, Inc., for services during the construction phase of the Columbia River (I-205) Bridge.

The subject agreement is an extension of an existing agreement between the two parties. The original agreement with Sverdrup & Parcel covered the preliminary design studies, final design, and construction engineering. This agreement was signed on September 30, 1970. The agreement was subsequently modified by ten supplements due to delays, additional design studies, and project changes. To improve the efficiency and effectiveness of the State's operation, we are proposing to make a final audit and close out this original agreement upon completion of the final design phase by the Consultant (anticipated in late 1977). This will allow termination of an agreement which has dragged on for an excessive time through no fault of the Consultant. This action requires transferring the item for construction engineering to a separate construction agreement.

The present contracting schedule for the Columbia River Bridge will call for construction engineering to continue into late 1981. The separation of construction engineering to a new agreement will require only a short period during which the two agreements will overlap. A separate agreement for the construction phase will permit release of retainage to the Consultant for all work satisfactorily completed under the design phase while creating no additional cost to the State.

The reasons for omitting our normal consultant selection procedures are as follows. The firm of Sverdrup & Parcel and Associates, Inc., was selected by the Consultant Selection Committee of the Highway Division in September of 1970 to provide the specified consulting services. Sverdrup & Parcel has been involved in this project since that date; they made the preliminary design studies; they administered the extensive sub-surface investigation program; and they have performed the final design. The final design included development of several special computer programs for this very complex structure. It is anticipated that contractor value engineering proposals and the numerous field problems will require the use of these programs for accurate and speedy response.

RECEIVED
STATE HWY ENGR
JUL 26 '77
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D/R
Sign
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This is a very complex structure of a sophisticated design relatively new on the North American continent. Sverdrup & Parcel, as designer, is familiar with the design and has the expertise necessary to cope with design changes or analysis for construction purposes. It does not appear to be in the public interest to do other than retain Sverdrup & Parcel as the consultant during the construction phase. Such a change would necessitate a familiarization period for any new consultant during which he would become acquainted with the design and complexities of the structure. In essence, the State has paid for a familiarization period. This automatically occurred when Sverdrup & Parcel designed the structure. Retention of Sverdrup & Parcel for consulting purposes during the construction phase appears to be the most logical and economical course of action.

WJH:dh
Enclosure

cc E. S. Hunter

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Consult.

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**DATE:** May 31, 1977

**TO:** Oregon Transportation Commission

**FROM:**
H. S. Coulter
State Highway Engineer

**SUBJECT:** Finance Approval
Consultant Construction Agreement, No. CA 3835
Columbia River (I-205) Bridge No. 9555
Multnomah County

A construction agreement has been negotiated with the firm of Sverdrup & Parcel and Associates, Inc., for certain engineering work during the construction phase of the North Channel sections of the subject bridge. The work involved includes evaluation of value engineering proposals made by the contractors, reviewing contractor's shop drawings, and general consultation during construction.

Sverdrup & Parcel are the designers of this portion of the bridge and are well suited to provide the required services.

The maximum cost under this agreement would be $540,000. It will be financed from the construction engineering funds authorized for the contracts.

This agreement has received preliminary approval from both the Federal Highway Administration and the Washington State Department of Highways.

I request your authority to proceed with this agreement. This matter will be on the Consent Calendar for your consideration at the June 21 meeting.

PMO:dh ia

bc R. A. Burco
C. W. Head
F. B. Klaboe
E. S. Hunter
R. L. Schroeder
R. N. Bothman
E. L. Hardt
L. W. Rulien
W. J. Hart
C. T. Keasey
V. E. Skoog
George Bell

Program Management
Max Klotz
Al Harwood

Form FHWA 121 (Rev. 5-73)

UNITED STATES GOVERNMENT

# *Memorandum*

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
Box 300
Salem, Oregon 97308

DATE: May 23, 1977

In reply refer to: HEC.3-OR

SUBJECT: Oregon Project I-205-7(38)315 et al
Columbia River Bridge
Consultant Construction Engineering Agreement

NOTED
H. S. COULTER

FROM: G. L. Green, Division Administrator

TO: Mr. H. S. Coulter, State Highway Engineer
Salem, Oregon

The Consultant Agreement (CA 3835) submitted by Mr. Walter J. Hart's letter of May 12, 1977, is approved as to form and content. Upon approval by the Transportation Commission, please furnish this office with the necessary copies for our formal approval. Also, please furnish an additional copy for the State of Washington.

It should be noted that the work called for in the Agreement will cover two or more contracts for the construction of the Columbia River Bridge. This office can only authorize consultant work for that work currently under contract.

E J Valach
for G. L. Green

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letter to Comm. —

cy Hunter
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Harrod

Noted
P.M. Oakley

NOTED
R. W. ELLISON

RECEIVED
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OREGON STATE
HIGHWAY DIVISION

HIGHWAY BUILDING • SALEM, OREGON • 97310

ROBERT W. STRAUB
GOVERNOR

NOTED
E. S. HUNTER

May 4, 1977

Mr. Jack Allen
Sverdrup & Parcel and Associates, Inc.
P. O. Box 369
505 106th N.E.
Bellevue, WA 98004

Columbia River (I-205)
Drill Logs
Bridge 9555

In regard to Mr. Gloyd's letter to you dated April 29, 1977 concerning completion of the drill logs appearing in the Foundation Reports, it appears that the work involved was an omission in the original report, is incidental in nature and should be performed under the terms of the original agreement at no additional cost to the State.

Walter J. Hart
Bridge Engineer

cc E. S. Hunter
C. S. Gloyd

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UNITED STATES GOVERNMENT

# *Memorandum*

**DEPARTMENT OF TRANSPORTATION**
FEDERAL HIGHWAY ADMINISTRATION
Box 300
Salem, Oregon 97308

DATE: April 18, 1977

In reply refer to: 1041EC.3

SUBJECT: Oregon Project I-205-7(38)315
Consultant Agreement
Sverdrup & Pacell and Associates, Inc.

NOTED
E. S. HUNTER

FROM : G. L. Green, Division Administrator

To : Mr. F. B. Klaboe, Chief of Operations
Oregon Department of Transportation
Salem, Oregon

The draft consultant agreement forwarded to this office by Mr. R. W. Ellison April 7 has been reviewed by this office and is approved as to form.

for G. L. Green

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FOR
Info | Inves | R/D | D/R | Sign | Act | File

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Form FHWA 121 (Rev. 5-73)

UNITED STATES GOVERNMENT

# *Memorandum*

DEPARTM : OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
Box 300
Salem OR 97308

DATE: March 14, 1977

In reply refer to: 1041AD

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note deadline

SUBJECT: Consultant Agreement
Sverdrup & Parcel & Associates Inc.
Columbia River (I-205) - Bridge

FROM : G. L. Green, Division Administrator

TO : Mr. F. B. Klaboe, Chief of Operations
Salem, Oregon

The proposed Consultant Agreement between the Oregon State Highway Division and the firm of Sverdrup & Parcel & Associates, Inc. for engineering services on the Columbia River (I-205) Bridge, has been reviewed by this office and is unacceptable in its present format.

The agreement does not fully meet the requirements of FHPM 6-1-2-2. It is deficient in documenting the method of payment to compensate the consultant for all the work required. That is, whether (a) lump sum; (b) cost per unit of work; (c) cost plus a net fee amount; or (d) specific rates of compensation. Also, the agreement contains no support for the engineering fee to be reimbursed. Such support must consist of a breakdown of direct salary costs, direct non-salary costs, and overhead costs.

Additionally, paragraph N.1. page 12 of the proposed agreement makes reference to regulations of the Department of Commerce and Federally assisted programs of the Department of Commerce. The proper reference is the Department of Transportation.

During the past two years we have worked very closely with your Program Management Section, and in particular Mr. M. C. Holmes, in an effort to establish uniform consultant agreement and format procedures, which would assure compliance with Federal regulations. As a consequence, uniformity and compliance for the most part has been achieved in those instances where local agencies have engaged consultants for engineering services. However, in those instances where the agreements have not been coordinated by the Program Management Section, as appears to be the case with the subject agreement, there is a lack of uniformity which, more often than not, results in noncompliance with Federal regulations.

Elvin
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We strongly recommend that procedures be established wherein all consultant agreements are coordinated at one central location, such as the Program Management Section, prior to approval by the ODOT or OSHD and prior to requesting FHWA approval. The agreement should be reviewed at this location to assure that all the regulatory and administrative requirements have been addressed by the agreement. In our opinion, such a procedure would do much to help assure uniformity and compliance with State and Federal regulations.

Approval of the proposed subject agreement is withheld pending resolution of the deficiencies set forth in the second and third paragraphs of this memorandum.

We would appreciate receiving your comments by April 15, 1977 regarding our recommendation that all consultant agreements be coordinated at one central location.

G L Green

G. L. Green

cc:
Gray

8905

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Consult.

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**OREGON STATE**
**HIGHWAY DIVISION**

HIGHWAY BUILDING • SALEM, OREGON • 97310

ROBERT W. STRAUB
GOVERNOR

February 25, 1977

Mr. R. Jack Allen
Sverdrup & Parcel
and Associates, Inc.
P. O. Box 369
505 106th N.E.
Bellevue, WA 98004

Columbia River (I-205) Bridge
Bridge 9555
North Channel Substructure Contract

Here are three sets of special provisions and bidding plans for the subject contract. The following is a list of the plan changes made since our last submittal.

| Sheet | Revision | Comment |
|---|---|---|
| 4 | Elevation Pier 12 | To show pedestal and raised bottom of footing elevation. |
| 8 | Plan & Elev. Pier 12 | See above |
| 12 | Added pedestal to footing<br>Decreased height of shaft<br>Decreased footing depth<br>Decreased seal thickness<br>Revised rebar as req'd | To reduce cost of pier |
| 13 & 15 | Added dimensions for Pier 2 caisson alternate | For clarification |
| 16 | Revised Pier 12 rebar<br>Added note on rebar for Pier 12 caisson alternate | To accommodate changes on sheet 12<br>For clarification |

NOTED
E. S. HUNT

| Sheet | Revision | Comment |
|---|---|---|
| 152 | Revised ground cable note Section F-F | For compatibility with change in Pier 12 footing configuration |
| 158 | Revised Pier 12 | To conform with present design |
| | Revised Net Pressures | As required for present design. |

Our present schedule is as follows:

Advertisement, February 28, 1977

Pre-bid Conference, March 22, 1977 at 9 a.m. in Room 122, Department of Transportation Building, Salem, Oregon.

Letting date, May 5, 1977

We would appreciate an early submittal of any comments you may have on these plans and special provisions as any changes will now have to go out in a letter of addendum. Other possible problems will have to be reviewed prior to the pre-bid conference.

R. W. Ellison

R. W. Ellison
Acting Bridge Engineer

Enclosures

cc E. S. Hunter
R. N. Bothman
H. A. Schell /w/ encl.
C. S. Gloyd /w/ encl. (2)
R. L. Carroll /w/ encl.
W. J. Hart (Reg. 1) /w/ encl.
A. C. Harwood /w/ encl. (2)
John Howard /w/ encl.

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Form FHWA 121 (Rev. 5-73)

UNITED STATES GOVERNMENT

# *Memorandum*

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
Box 300
Salem OR 97308

DATE: January 21, 1977

In reply refer to: 1041BR

SUBJECT: Oregon Project I-205-7(2)302
Columbia River Bridge
Consultant Construction Agreement

FROM : G. L. Green, Division Administrator

TO : Mr. H. Scott Coulter, State Highway Engineer
Salem, Oregon

We have reviewed Mr. Ellison's January 3 and January 18 letters indicating why you desire to prepare a new consultant construction agreement with Sverdrup and Parcel and terminate the old agreement for preliminary and final design and shop drawing reviews.

We find that the reasons outlined in those letters justify the selection of Sverdrup and Parcel and recommend that you proceed with agreement preparation.

For G. L. Green

1-31-77 Mainor

Send Copy to Bob Ellison - Br. Sec. #

1/31/77

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**OREGON STATE**
**HIGHWAY DIVISION**

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ROBERT W. STRAUB
GOVERNOR

NOTED
H. S. COULTER

January 18, 1977

Mr. Glen L. Green
Division Administrator
Federal Highway Administration
P. O. Box 300
Salem, OR 97308

Columbia River Bridge
Bridge 9555
Consultant Construction Agreement

We are, herein, providing additional background for our request for your approval for preparing a consultant construction agreement as outlined in our letter of January 3, 1977.

Our present agreement with Sverdrup & Parcel covering the preliminary report, final design, and checking of shop drawings was signed September 30, 1970. It has since been supplemented by agreements dated 12-10-70, 3-29-72, 12-18-72, 8-1-73, 10-24-73, 11-21-73, 6-11-75, 7-23-76, 10-4-76, and 10-28-76. To improve the efficiency and effectiveness of our operations, we are proposing to make a final audit and close out this agreement upon receiving final PS & E documents from the Consultant (anticipated in mid 1977). This will also allow termination of an agreement which has dragged on for an excessive time through no fault of the Consultant. Such action requires transferring the item for checking shop drawings to the construction agreement.

Under our present contracting schedule the checking of shop drawings could continue well into 1981 requiring the administration of two agreements throughout that time. Moving this item to the new agreement would require only a short period during which the two agreements would overlap. It would put all the construction phases under one agreement, permit release of retainage to the Consultant for all work satisfactorily completed under the design agreement, while creating no additional costs to the State. It thus appears to be advantageous to all parties to make this transfer.

Our reasons for omitting our normal consultant selection procedure are as follows. Sverdrup & Parcel have been involved in the project since 1970. They made the preliminary design study, administered the foundation testing procedures and did the final design. This included development of several special computer programs necessary for the design and analysis of this very complex structure. It is very likely that some of the contractor's proposals and field problems that might arise will require the use of these programs for accurate and speedy analysis.

This is a very complex structure and is a sophisticated design. Sverdrup & Parcel, as designer, is familiar with the design and has the expertise necessary to cope with necessary design changes or analysis for construction purposes. It does not appear to be in the public interest to do other than retain Sverdrup & Parcel as the consultant during the construction phase. Such a change would necessitate a familiarization period for the new consultant during which he becomes acquainted with the design and complexity of the structure. In essence, we have paid for a familiarization period. This automatically occurred when Sverdrup & Parcel designed the structure. Retention of Sverdrup & Parcel for consulting purposes during the construction phase appears to be the most logical and economic course of action.

ORIGINAL SIGNED
R.W. ELLISON

R. W. Ellison
Acting Bridge Engineer

cc H. S. Coulter
E. S. Hunter
R. N. Bothman
W. A. Bulley
R. L. Carroll

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**OREGON STATE**
**HIGHWAY DIVISION**

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ROBERT W. STRAUB
GOVERNOR

January 3, 1977

Mr. Glen L. Green
Division Administrator
Federal Highway Administration
P. O. Box 300
Salem, OR 97308

Columbia River (I-205) Bridge
Bridge 9555
Consultant Construction Agreement

As discussed in your meeting with Mr. Ellison and Mr. Oakley of this office, we are proposing the preparing of a consulting agreement for the construction phase of the substructure and superstructure contracts (spans 10 through 26) of the subject structure.

This agreement would include, but not necessarily be limited to, the following items:

I. Evaluation of value engineering proposals.

II. Redesign necessary due to unanticipated changes in foundation materials.

III. Evaluation of contractor's construction procedures.

IV. Checking of shop drawings.

In addition to providing the above, the consultant will be required to have in his organization persons acknowledged to have expertise in the design and construction of the type of work contemplated or to employ an outside agency having such personnel.

Item IV listed above is in our existing agreement with Sverdrup & Parcel. Deleting it from that agreement will permit closing out that agreement, which has been dragging on since 1970, upon receipt of final PS & E documents covering the subject structure. This would require a revised payment scale for this work based upon the consultant's present salary scale and overhead multiplier. This was last updated in 1974 anticipating the work being done during the 1974-75 period.

Before assigning the checking of shop drawings to the consultant, we will review our in-house capabilities for doing this work, considering manpower availability and the possible cost savings that may accrue.

We propose eliminating our normal selection procedures and negotiating this agreement directly with Sverdrup & Parcel because of their involvement in and intimate knowledge of the design phase of this project.

We are presenting this proposal to you at this time soliciting any comments you may have and asking your approval for us to proceed on this basis, realizing that the final agreement arrived at will require FHWA approval.

ORIGINAL SIGNED
R.W. ELLISON

Walter J. Hart
Bridge Engineer

cc H. S. Coulter
E. S. Hunter
R. N. Bothman
W. A. Bulley, Washington Dept. of Hwys.
R. L. Carroll, Washington Dept. of Hwys.

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January 4, 1977

Mr. R. Jack Allen
Assistant Vice President
Sverdrup & Parcel and Associates, Inc.
P. O. Box 369
Bellvue, Washington 98004

Dear Mr. Allen:

I-205 Columbia River Bridge
Bridge 9555
Sverdrup & Parcel
Corporate Structure Change

In reply to your December 14 letter concerning the change in your corporate structure, please be advised that upon advice of legal counsel we do not intend to change or assign the contract entered into with Sverdrup & Parcel and Associates, Inc.

From our standpoint, you may change your corporate structure and assign your internal responsibilities as you choose but the ultimate responsibility for providing the engineering, architectural and planning operations for the design of the I-205 bridge will still remain with Sverdrup & Parcel and Associates, Inc.

Very truly yours,

E. S. Hunter
Deputy State Highway Engineer

bc H. S. Coulter
Cecil Head (enc.)
W. J. Hart
Jack Sollis
L. W. Rulien "

JLS/s ja

SVERDRUP & PARCEL AND ASSOCIATES, Inc.

December 14, 1976

NOTED
JACK L. SOLLIS

Oregon State Highway Division
Highway Building
Salem, Oregon 97310

Attention: Mr. Walter J. Hart
Bridge Engineer

Gentlemen:

Subject: I-205 Columbia River Bridge
Bridge 9555
Sverdrup & Parcel Corporate Structure Change

The Board of Directors of Sverdrup & Parcel and Associates, Inc., has recently approved a change in our corporate structure. Effective January 1, 1977, we plan to rename Sverdrup & Parcel and Associates, Inc., the SVERDRUP Corporation which will act as a holding company for our subsidiaries providing design, real estate development and facilities operation services.

The only change, from your standpoint, will be that professional services will be provided by a Delaware corporation instead of the present Missouri corporation. The name, Sverdrup & Parcel and Associates, Inc., will still be used for our engineering, architecture, and planning operations in this wholly-owned subsidiary.

Ownership and management, personnel assignments, and organization will remain essentially unchanged by the corporate rearrangement. The same high quality of work will continue to be provided by the Sverdrup group of companies.

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Oregon State Highway Division
Salem, Oregon 97310
Page 2.

December 14, 1976

While I am quite certain that you will have no objection to this formal change, I would appreciate having your consent by receiving a copy of this letter endorsed by you in the space provided below. Naturally, if you have any questions or comments please contact me.

Sincerely,

SVERDRUP & PARCEL AND ASSOCIATES, Inc.

Jack Allen

E. Jack Allen, P. E.
Assistant Vice President

APPROVED:

By:____________________

____________________
Title

____________________
Date

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**OREGON STATE
HIGHWAY DIVISION**

HIGHWAY BUILDING • SALEM, OREGON • 97310

ROBERT W. STRAUB
GOVERNOR

December 29, 1976

Mr. R. Jack Allen
Sverdrup & Parcel and
Associates, Inc.
P. O. Box 869
505 106th N. E.
Bellevue, WA 98004

Columbia River (I-205) Bridge
Bridge 9555
Cost Estimates Concrete and Steel Alternates

We have recently had numerous queries as to the feasibility and possible cost savings of including a steel alternate for the subject structure.

For this reason we are directing you to update the cost estimates for the various alternates made in the preliminary study phase of this project by using today's costs.

ORIGINAL SIGNED
WALTER J. HART

Walter J. Hart
Bridge Engineer

PMO:dcb

cc: Ed Hunter
Bob Bothman

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**OREGON STATE**
**HIGHWAY DIVISION**

HIGHWAY BUILDING • SALEM, OREGON • 97310

ROBERT W. STRAUB
GOVERNOR

BR. 9555

October 29, 1976

NOTED
E. S. HUNTER

Mr. R. Jack Allen
Sverdrup & Parcel and Associates, Inc.
P O Box 369
505 106th NE
Bellevue, WA 98004

Dear Mr. Allen:

Columbia River (I-205) Bridge
Substructure - Spans 10 through 26

Here are selected drawings from the substructure plans on which we have marked in red our comments and recommendations for clarifying the point of separation between superstructure and substructure along with several other suggested additions as outlined below.

| | |
|---|---|
| Sh. G-2 | Make separation line more definite. (Typical all locations)<br>Lines for pier 15 should be solid.<br>Legend should be removed (There are CIP and precast elements in substructure as well as superstructure.)<br>NIC should be added to superstructure Cross Section (Typical for all details throughout plans.)<br>Add river datum detail as shown. |
| Sh. G-3 | Same as G-2<br>Lines for pier 14 should be solid. |
| Sh. G-4 | Same as G-2<br>Elevation of abutment 27 does not depict present design. |
| Sh. G-6 | 4000# vehicle is not shown on these plans. Should be on plans for information.<br>Add note to reinforcing pertaining to exposed rebar.<br>Construction specifications should be changed to read OSHD Standard Specifications.<br>The NIC definition should be expanded to note that column bars will extend beyond this point. |

| | |
|---|---|
| Sh. 10-14-N1. | Darken dimension lines separating contracts.<br>Add NIC to sections as shown.<br>The above notes are typical for all columns. |
| Sh. 10-14-N2. | Darken dimension lines separating contracts on key elevation. Typical all similar details. |
| Sh. 20-26-N25 | Clearly indicate wing wall is not in contract.<br>Suggest deleting concrete cap for single pile from concrete to simplify exposed rebar problems.<br>Delete note pertaining to back wall. |
| Sh. 20-26-N26 | Same as Sh. 20-26-N25.<br>Delete note pertaining to guard rail blockout. |
| Sh. S1 | Add NIC to details as shown.<br>Delete notes that do not pertain to this contract. |
| Sh. S2, S5, & S6 | Delete sheets or note it is for information only. |
| Sh. S3, S4 | As shown. |
| Sh. S7, S8 | As shown and add note indicating required treatment of ground conductor and conduit at temporary ending. |
| Sh. S9 | Navigation light should be changed to battery-operated light for temporary service. |

If you have any questions or comments on the above, please contact Phil Oakley of this office.

Very truly yours,

WALTER J. HART
Walter J. Hart
Bridge Engineer

PMO/ag
Encls.
cc E. S. Hunter
G. L. Green
R. N. Bothman
C. S. Gloyd
A. C. Harwood
J. Howard

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**OREGON STATE**
**HIGHWAY DIVISION**

BR. 9555

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ROBERT W. STRAUB
GOVERNOR

October 28, 1976

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NOTED
E. S. HUNTER

Mr. R. Jack Allen
Sverdrup & Parcel and Associates, Inc.
P O Box 369
505 106th NE
Bellevue, WA 98004

Dear Mr. Allen:

Columbia River (I-205) Bridge
Separation of Spans 10-26 Into Two Contracts

The breakdown of your costs for separating the plans and specifications for Spans 10 through 26 has been reviewed and your fee of $20,270 was found to be satisfactory for this work.

Payment will be made as a lump sum addition to our original agreement dated September 30, 1970.

If this is satisfactory to you, please indicate your approval by endorsing the original of this letter and returning same to me.

Very truly yours,

for R.W. Ellis
Walter J. Hart
Bridge Engineer

PMO/ag
cc E. S. Hunter
V. E. Skoog
G. L. Green
C. S. Gloyd

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BRIDGE SECTION

SIGNED BY Jack Allen

DATE Nov. 1, 1976

NOTED
P.A. ANDERSON

NOTED
R. W. ELLIS

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Consult

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UNITED STATES GOVERNMENT

# *Memorandum*

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
Box 300
Salem OR 97308

DATE: October 26, 1976

In reply refer to: 1041RW

SUBJECT: Oregon Project I-205-7(2)301
Columbia River Bridge
Sverdrup & Parcel Fee for Dividing
Plans and Specifications

FROM : G. L. Green, Division Administrator

NOTED
E. S. HUNTER

TO : Mr. H. S. Coulter, State Highway Engineer

We hereby approve as of August 27, 1976, Sverdrup & Parcel's fee for dividing the plans and specifications for Spans 10 - 26 into separate substructure and superstructure contracts. We feel their fee is reasonable as support to Mr. Schell by Mr. Oakley.

For G. L. Green

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**OREGON STATE**
**HIGHWAY DIVISION**

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ROBERT W. STRAUB
GOVERNOR

September 8, 1976 BR 9555

Mr. Glen Green
Division Administrator
Federal Highway Administration
P. O. Box 300
Salem, OR 97308

Dear Mr. Green:

Columbia River (I-205) Bridge
Bridge 9555
Spans 10 through 26

Attached is a copy of a letter from Sverdrup & Parcel justifying their fee for dividing the plans and specifications for spans 10 through 26 into separate substructure and superstructure contracts.

It was estimated that to do this work by state forces would require 762 manhours of labor and reproduction costs totaling $1,035. Scheduling becomes a disadvantage of doing this work by state forces as the tracings would not be available until mid November, making it difficult to meet our December 3 advertising date.

Mr. Schell gave verbal approval of this work for an estimated $20,000 by phone August 25, 1976.

For the above reasons we believe the consultant's fee of $20,270 to be reasonable and request your written approval for this work. This extra work will fall within the funds presently authorized for this project.

Very truly yours,
ORIGINAL SIGNED
WALTER J. HART
Walter J. Hart
Bridge Engineer

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REFER TO
FOR
Info Inves R/D D/R Sign Act File

noted

PMO:dh
Attachment

cc E. S. Hunter

SVERDRUP & PARCEL AND ASSOCIATES, Inc.
CONSULTING ENGINEERS
505 - 108TH AVENUE N. E.
P. O. BOX 369
BELLEVUE, WASHINGTON 98009

September 2, 1976

Oregon State Highway Division
Highway Building
Salem, Oregon 97310

Attention: Mr. Walter J. Hart
Bridge Engineer

Gentlemen:

Subject: I-205 Columbia River Bridge
Bridge 9555
Spans 10 through 26

In accordance with your request by letter dated August 27, 1976, we are furnishing the following breakdown of our estimated costs to separate the plans and specifications for Spans 10 through 26 into two contracts, substructure and superstructure:

| | | |
|---|---|---|
| Base Salary Cost | | |
| 920 manhours @ $8.60 | $ 7,910 | |
| Salary Related Expense @ 27% | 2,140 | |
| Productive Salary Cost | | $10,050 |
| Overhead @ 59.5% | | 5,980 |
| Direct Cost (Reproductions) | | 1,600 |
| Total Cost | | $17,630 |
| Profit | | 2,640 |
| Fee | | $20,270 |

Very truly yours,

SVERDRUP & PARCEL AND ASSOCIATES, Inc.

Jack Allen

R. Jack Allen, P. E.
Project Engineer

cc: Robert N. Bothman

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BRIDGE SECTION

NOTED
R. W. ELLISON

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OREGON STATE
HIGHWAY DIVISION

HIGHWAY BUILDING • SALEM, OREGON • 97310

ROBERT W. STRAUB
GOVERNOR

NOTED
E. S. HUNTER

BR. 9555

October 4, 1976

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Mr. R. Jack Allen
Sverdrup & Parcel and Associates, Inc.
P O Box 369
505 106th NE
Bellevue, WA 98004

Dear Mr. Allen:

Columbia River (I-205) Bridge
Printing Foundation and Hydraulic Reports

Authority is hereby granted you to proceed with the printing of 50 copies each of the three foundation reports and the Bauer hydraulic report. Covers need not be exotic but must be serviceable.

These copies should be forwarded to our Salem office when available.

You will be compensated for your direct costs, for printing and postage upon receipt of the proper invoices, not to exceed $3,500.

Payment will be made as a lump sum addition to our original agreement dated September 30, 1970.

If this is satisfactory to you, please indicate your approval by endorsing the original of this letter and returning the same to me.

Very truly yours,

Walter J Hart

Walter J. Hart
Bridge Engineer

PMO/ag
cc ✓E. S. Hunter
V. E. Skoog
G. L. Green

Signed By Jack Allen

Date October 7, 1976

NOTED
P.A. ANDERSON

NOTED
W. J. HART

NOTED
P.M. OAKLEY

8905
Consult

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**OREGON STATE HIGHWAY DIVISION**

HIGHWAY BUILDING • SALEM, OREGON • 97310

ROBERT W. STRAUB
GOVERNOR

August 27, 1976

NOTED
E. S. HUNTER

Mr. R. Jack Allen
Sverdrup & Parcel and Associates, Inc.
P. O. Box 369
Bellevue, WA 98004

Dear Mr. Allen:

Columbia River (I-205) Bridge
Bridge 9555

Authority is hereby granted for you to make all necessary changes to separate into two contracts the plans for spans 10 through 26 of the subject structure. One contract will be for the substructure and the other for the superstructure. The point of division shall be at the top of the parabolic flare for the piers and at the top of the beam seat for Abutment 27.

To justify the extra costs involved it will be necessary to submit a more detailed breakdown for this work than the total hours and reproduction costs furnished in Mr. Treman's phone call to Mr. Oakley. This breakdown should be limited to only that work which is beyond Item 6 of Section B. Final Design, of the original agreement dated September 30, 1970, and amendments. The above authority to proceed is predicated on the final cost of this work not exceeding $21,000.

In order to meet our December 3 advertising date, it will be necessary to forward revised prints for the substructure by September 24 for review.

Very truly yours,

ORIGINAL SIGNED
WALTER J. HART
Walter J. Hart
Bridge Engineer

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FOR
Info Inves R/D D/R Sign Act File

PMO:dh

cc E. S. Hunter
R. N. Bothman
C. S. Gloyd
G. L. Green

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8

**OREGON STATE**
**HIGHWAY DIVISION**

HIGHWAY BUILDING • SALEM, OREGON • 97310

ROBERT W. STRAUB
GOVERNOR

File BR. 9555

August 9, 1976

NOTED
E. S. HUNTER

Mr. R. Jack Allen
Sverdrup & Parcel and Associates, Inc.
P O Box 369
505 106th NE
Bellevue, WA 98004

Dear Mr. Allen:

Columbia River (I-205) Bridge
Final EIS

We are forwarding one copy of Volume I of the Final Environmental Impact Statement for the I-205 Highway in which we have indicated in red paragraphs concerning construction of the bridge. These can be found on the following pages - 26, 27, 29, 30, 42, 53, 54, 76, 125, 127, 195, 196, 197, 225, and 229.

The items should be reviewed to be sure that the necessary information is included in the plans and/or specifications to carry out the intent of the Statement.

Very truly yours,

WALTER J. HART

Walter J. Hart
Bridge Engineer

PMO/ag

cc E. S. Hunter
~~R. N. Bothman~~

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**OREGON STATE**
**HIGHWAY DIVISION**

HIGHWAY BUILDING • SALEM, OREGON • 97310

ROBERT W. STRAUB
GOVERNOR

File BR. 9555

July 23, 1976

NOTED
E. S. HUNTER

Mr. R. Jack Allen
Sverdrup & Parcel and Associates, Inc.
P O Box 369
505 106th NE
Bellevue, WA 98004

Dear Mr. Allen:

Columbia R. (I-205) Bridge
Specifications for Main Channel and
Oregon Approach Spans

This is to confirm Mr. Oakley's telephone call to you yesterday during which he instructed you to prepare the special provisions for this portion of the structure permitting the work to be divided into separate substructure and superstructure contracts. This is in compliance with Item 6 of Section I(B) of our agreement dated September 30, 1970.

To meet our proposed letting date of March 3, 1977, it will be necessary to have a draft of these special provisions by the end of August.

It is proposed that this split in contracts be made at the top of the parabolic flare in the columns unless you find there are valid reasons for choosing another location.

Would you please evaluate the work involved in revising the plans for this split and inform us of your anticipated costs.

Very truly yours,

ORIGINAL SIGNED
WALTER J. HART
Walter J. Hart
Bridge Engineer

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FOR
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PMO/ag
cc E. S. Hunter
~~R. N. Bothman~~
C. S. Gloyd
G. L. Green

8905
Consult.

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**OREGON STATE
HIGHWAY DIVISION**

HIGHWAY BUILDING • SALEM, OREGON • 97310

ROBERT W. STRAUB
GOVERNOR

File BR. 9555

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July 23, 1976

Mr. R. Jack Allen
Sverdrup & Parcel and Associates, Inc.
P O Box 369
505 106th NE
Bellevue, WA 98004

Dear Mr. Allen:

Columbia River (I-205) Bridge
Washington Approach Spans

The four items listed in your letter of June 12, 1974, have been reviewed by the State of Washington as well as our staff, and we have reached the following conclusions.

1. Variable Height of End Abutment.
   While we do not believe this to be the best design, we will accept it as detailed with the addition of grout pads to ensure a true bearing surface. Top of pad elevations to be shown on plans.

2. Top Slab Longitudinal Steel Spacing.
   Accept as detailed.

3. Location and Shape of Diaphragm Openings.
   Accept as detailed with your assurance stress conditions have been considered. Our research indicates similar details have been used in other states.

4. Exclusion of Joint Seals.
   Seals should be excluded from this contract and the necessary embeded plates and temporary bridging designed and detailed on the plans. The 40 man hours listed for this work are satisfactory.

Payment for the extra work done under Item 4 will be made as follows:

| | | |
|---|---|---|
| Man Hours Required | 40 Hours | |
| Avg. Salary Rate | $8.40 | $336.00 |

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SVERDRUP & PARCEL

| | | |
|---|---|---|
| Salary Related Expenses | 27% | $ 90.72 |
| Overhead | 59 1/2% | 253.90 |
| Profit | | 102.38 |
| | TOTAL | $783.00 |

This payment will be made as a lump sum addition to Item 2 of our agreement dated October 30, 1974.

If this is satisfactory to you, please indicate your approval by endorsing the original of this letter and return the same to me.

Very truly yours,

Walter Hart

Walter J. Hart
Bridge Engineer

PMO/ag
cc E. S. Hunter
cc C. S. Gloyd
Glen Green w/encl.
-Please return one copy with your approval noted thereon.

AMENDMENT SATISFACTORY TO
SVERDRUP & PARCEL AND ASSOCIATES, INC.

Jack Allen
By Assistant Vice President

July 26, 1976
Date

NOTED
W. J. HART

RECEIVED
SEP 27 1976
BRIDGE SECTION

8905 Consult

File BR 9555

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**OREGON STATE**
**HIGHWAY DIVISION**

HIGHWAY BUILDING • SALEM, OREGON • 97310

ROBERT W. STRAUB
GOVERNOR

F. B. KLABOE
Administrator of Highways

March 23, 1976

NOTED
E. S. HUNTER

Mr. R. Jack Allen
Sverdrup & Parcel and Associates, Inc.
P O Box 369
505 106th NE
Bellevue, WA 98004

Dear Mr. Allen:

I-205 Columbia River Bridge
Access to Navigational Lights

Your letter of March 4, 1976 suggested the use of a "TULITO" climbing system to provide safe access to water level navigation lights for the subject structure.

Our Safety Officer has given approval for use of this system in lieu of a cage around the access ladder. Because of the fluctuating water surface, the access ladders for these navigation lights will be exposed to potential damage by floating debris. Therefore, the ladders should be designed to withstand the forces which can be expected from such contact. This will minimize the annual maintenance work required to keep the ladders in usable condition.

Very truly yours,

ORIGINAL SIGNED
WALTER J. HART
Walter J. Hart
Bridge Engineer

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RWE/ag

cc E. S. Hunter
R. N. Bothman
P. M. Oakley
R. Stose

RECEIVED
MAR 25 1976
Office of
Assistant State Highway Engineer

STATE OF OREGON
Department of Transportation

INTEROFFICE MEMO

TO: R. W. Ellison
Bridge Administration Engineer

DATE: March 19, 1976

FROM: Ray Stose Ray Stose
Safety Officer

SUBJECT: Columbia River (I-205) Bridge
Bridge 9555
Access to Navigation Lights
Personnel Safety

NOTED
E. S. HUNTER

In reply to your request concerning the legality of a TULITO Climbing System instead of a ladder cage, please be advised that the TULITO Climbing System is on the Workmen's Compensation Board's approved list for use in leu of the cage.

I have personal feelings that the climbing safety systems, TULITO or others, are far superior to any ladder cage around permanently installed ladders. The best a cage can do is contain your direction of fall to a specified target below. The ladder climbing safety devices will restrict your fall to between 6 to 12 inches.

We heartily recommend the TULITO System for the access ladders.

RS:lk

cc: E. S. Hunter
Bob Bothman
P. M. Oakley
H. L. Grover

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81-125-1387

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Consult

March 19, 1976

U. S. Department of Interior
Office of the Secretary
Washington, D.C. 20240

Rpt in p 5 of Rpts Folder #2

Dear Mr. Secretary:

The Oregon State Highway Division received your Department's May 5, 1975, letter of comment to the Draft Environmental Impact Statement/4(f) Statement concerning the completion of I-205 in Portland, Oregon (Exhibit A). Topics discussed in your letter included the adequacy of the 4(f) Statement, wetlands and storm water runoff and effects on ground water supplies. Specific comments concerning data on dredging and water resources were also submitted. The Oregon State Highway Division initiated additional research to respond to each of the three major concerns. This letter details the results of this analysis relation to Section 4(f) concerns and this information will be used in preparation of the Final Environmental Impact Statement. Appropriate corrections have already been made in the forthcoming Final Environmental Impact Statement in response to your specific comments about dredging and water resources.

A field trip to Government Island and a meeting attended by representatives of all concerned agencies was held on November 7, 1975, to inspect the subject lands and clarify issues raised by DOI in the May letter. These individuals toured the proposed right-of-way area on Government Island. Stakes had been placed to outline the toe of the fill slope and the location of the centerline along the preferred short fill alternatives. Sid Malbon, the DOI representative, explained the concerns of your agency in the afternoon meeting. A list of meeting attendees and a very brief summary of matters discussed is appended in Exhibit B.

## Section 4(f) Concerns

Your Department outlined areas of concern with regard to 4(f), both in your letter and at the November 7 meeting in Portland. Of major concern was whether all planning to minimize harm to 4(f) lands has been accomplished by the Oregon State Highway Division. In this regard, your letter discussed the relative merits of an all-structure or shorter fill crossing of Government Island, the extent to which Government Island should be preserved for future public use, and the mechanism which might ensure the recreational use of the island.

## Bridge Design Aspects

In answer to your comments concerning aspects of bridge design, analysis of three alternative bridge designs for crossing Government Island had previously been completed by Sverdrup and Parcel and Associates, Inc., Consulting Engineers. Design variations discussed in the appended report (Exhibit C) and submitted to the Highway Division in March 1974 relate to the crossing of Government Island. The three designs investigated were an all-structure extension, a short fill, and a long fill. The preferred alternate, the short fill, was described in detail on pages 3-9 and 10 of the Draft Environmental Impact Statement, while the other two alternatives were briefly described on pages 4-14 of the 4(f) Statement. The alternatives were compared in categories of construction characteristics, time, aesthetics, and hydraulic impacts. A summary of this comparison is presented in the table below:

| Characteristics | Alt. 1 | Alt. 2 | Alt. 3 |
|---|---|---|---|
| Type | All-structure | 1,170 fill* | 3,005 fill |
| Ave. Ht. Above Island | 55 feet | 45 feet** | 55 feet** |
| Material Source | Not required | Dredged from construction channel | Dredged from construction channel |
| Est. Construction Time | 45 months | 45 months | 39 months |
| Est. Construction Cost | 120 million | 111 million | 100 million |
| Esthetics | Doesn't hinder island movement; elevated above vegetation | Allows movement at both ends of fill; within island vegetation | Fill as barrier to all movement; elevated above island |
| Hydraulic Impacts | No additional dredging required*** | No additional dredging required*** | Some additional dredging required*** |
| | No additional impact | No additional impact | Slight adverse impact at the 100-year flood stage, leading to possible erosion on Washington bank downstream |

*+1125 feet on top and +1215 feet at the toe. The length of the base is the important figure for assessing impact to the island.

**Subsequent to completion of the study by the consultant, the grade line was lowered across the island to 25 feet on Alternative 2 and 40 feet on Alternative 3.

***Dredging will be required for a construction channel along the right-of-way. Any materials not used in the project will have to be disposed of in another manner.

The report conclusions were: "If minimum effect on the river and on Government Island is the sole criterion, Alternative 1 is the choice. Alternative 2 will be selected if maximum aesthetic value is the criterion, and Alternative 3 will be chosen if the lowest construction cost and the shortest construction schedule are most important."

As a result of the Oregon State Highway Division evaluation, and the recommendations of the consultant, Alternative 3 was considered to be the logical choice. This choice retains substantial cost effectiveness and time savings which outweigh the minimal impacts to esthetics, hydraulics and the river bottom. However, the Oregon State Highway Division selected Alternative 2 as a compromise solution. The OSHD has agreed to increase construction time by six months and $11 million to the cost in recognition of environmental-related concerns. Also, the Division has concluded that very little, if any, additional benefits would be gained by selection of Alternate 1 (all-structure) or a shorter fill, instead of Alternate 2.

Alternate 2 calls for a fill approximately 1215 feet long at the toe. Passageways left open within the vegetation zone to allow random lateral movement of fauna around the fill will be approximately 50 feet wide at the toe at the north end and approximately 200 feet wide at the south end. A portion of the southern passage area is elevated above the 100-year flood (elevation 28.4). The maximum elevation of the northern passageway is approximately 25 feet, well above the 21.0-foot 5-year flood elevation.

The main advantage of no fill would be to maximize the area available for lateral movement along the axis of the island rather than preserve habitat. However, direct impacts from construction of a fill or structure to existing habitat within the right-of-way would be almost identical. If the structure option had been selected, construction activities in the right-of-way area would have destroyed almost all existing vegetation, and it is unlikely this habitat would return to its original form. The topography would also be altered by construction activities and the placement of piers.

In an effort to address the concerns of both the OSHD and DOI, the representative of DOI suggested a reduction in the length of fill by 300 feet along the south end of the island at the November 7 meeting. Expressed advantages of this concept by DOI were to retain a wider zone for passage, and that two swales considered as Type I Wetlands (seasonally flooded basins or flats) would remain as modified only within the right-of-way area after construction is completed.

Factors preclude shortening the fill as suggested at the November 7 meeting. First, costs would be increased by approximately $3 million. Second, adverse impacts of fishery resources caused by dredging would not be eliminated, because dredging would be required to complete the construction channel. The Portland Yacht Club (Exhibit D) has requested no material be sidecast as "...it will undoubtedly find its way into the shallow side channels and reduce their usefulness." They fear this procedure would accelerate the process of accretion in a small manmade moorage on Sand Island. Correspondence between the Portland Yacht Club and the OSHD is presented in Exhibit D. If dredged material planned for disposal on the fill were not used in the fill and also not sidecast, it would have to be deposited at another location, likely riparian, at greater expense and with potentially significant impacts.

The affected portion of the island appears to be near its carrying capacity for grazing animals, based on a visual inspection of vegetation. The larger animal population consists of a small number of deer and cattle. The allotted passage space appears adequate to accommodate all movement requirements of this small population.

Additional land elevated above the 100-year flood level, and free-flowing aquatic habitat are not increased by shortening the fill. The southern opening is presently elevated above the computed 100-year flood level. The wetlands involved do not have direct flow access to the river except during extremely high flows.

Finally, recreation will not be affected, as public usage of the island is confined mainly to the beach areas below the vegetation line.

## Public Use of Government Island

The issue of preservation of Government Island for future public use has already been partially addressed in the analysis above. This situation is best studied based on a detailed review of the physical characteristics of the island, ownership considerations, present uses, and future plans. These topics are already described in the 4(f) Statement of the Draft Environmental Impact Statement in some detail. Additional background and other information provided below should clarify some germane concerns.

The Port of Portland, a public agency, maintains Government Island with the exception of a privately owned 225-acre parcel on the east end. Government Island was initially acquired by the Port of Portland from the Oregon State Game Commission to accommodate expansion of the Portland International Airport. In their letter to the Port of Portland dated November 20, 1969, (Exhibit E), the Oregon State Game Commission indicated that they anticipated improving their management program by selling Government Island and two small nearby islands. Successful management of Government Island by the Game Commission had been hindered by vandalism, seasonal flooding, periodic airport noise, and migration of the flyway to the west. The Game Commission spent monies ($900,000) derived from sale of these three islands to acquire other Columbia River island habitat in the Portland metropolitan area, primarily on Sauvie Island. Advantages of the new sites include reduced noise (no airport) and a more stable habitat which attracts and supports a much larger waterfowl population. As stated in the Game Commission letter, "The program to be carried out...will result in an orderly program for the acquisition of exchange properties of equal or superior useful value to carry out the statutory objectives and purposes of the Game Commision." The Game Commission gives every indication that this objective has been met.

The existing land use of the island is also described in some detail in the 4(f) Statement. Visual inspection during the November 7 field trip revealed only limited use in the right-of-way area. No significant human modification or disturbance was observed above the vegetation line and within view of the alignment. Vegetation had been grazed to a height of approximately six feet. Limited past use of the beach area along the south side of the island was observed where a couple of campfires had been located. No evidence of recreational use was observed along the north bank. The river frequently rises above the beach elevation and other indications of human use had been removed. The right-of-way area is difficult to reach directly by boat. Bars on both sides of the island preclude direct access, except under high water conditions. While high water conditions allow direct access, tieing on to the steep bank above the beach is difficult.

The present policy of the Port of Portland, as defined in Multnomah County zoning, is to maintain the island in the classification of "recreation and open space." The Port of Portland is now updating their airport area master plan. Government Island lies within this area. The plan, being developed in conformance with FAA guidelines which require public and local governmental involvement, will be completed in approximately one year. Adoption of this plan will determine the use designation for Government Island by its owner in the foreseeable future.

DOI has suggested 4(f) "could be satisfied if the Oregon State Game Commission entered into an agreement with the Port of Portland,... to insure in perpetuity a public right to use of the beaches and a riparian strip of Government Island for recreation purposes." (Exhibit A, page 3.) We have determined that the State of Oregon does in fact own the beaches or that land lying between high and low waterlines. These lands cannot by statute be alienated so, therefore, are protected in perpetuity. Lands above high water are not desirable as noted previously and are not needed during the periods of high summer recreational use. The adopted fill design will leave the desired and used riparian areas on both banks of the island. The Oregon Department of Transportation contacted the Port of Portland and requested that they pursue the concept of entering into a written agreement to preserve recreational uses of the island. The Port of Portland, while recognizing the position of OSHD, declined to either contact the Game Commission or formally respond to our request, since their main concern was potential future use limitations that could result. The Port of Portland is responsible for commercial and industrial development through the promotion of commerce and trade. It is, therefore, not surprising that the Port feels any use limitation would place it in a less tenable position. Active uses of Government Island, such as a material source or a rebirth of an airport expansion plan, would be precluded.

An alternative course of action is to acquire Government Island and return it to Fish and Wildlife Commission control. The Oregon Department of Transportation, however, does not have a funding mechanism to carry out this proposal. The Game Commission desired to sell Government Island and acquire superior island habitat in the Portland area, and the Commission has expressed no subsequent interest in re-acquiring Government Island. The Oregon Department of Transportation has no legal capabilities to force agreement between the Fish and Wildlife Department and the Port of Portland. The Department of Transportation recognizes the legitimate concern of the Port of Portland and can only conclude it has made the best possible effort to persuade the Port to preserve the island for recreational use.

## Preservation and/or Replacement of Wetlands

Type I Wetlands as defined in U.S. Fish and Wildlife Circular 39 are found on Government Island within the right-of-way area. DOT Order 5660.1 defines and addresses the importance of wetlands as habitat and the need for their preservation. The wetlands on Government Island were investigated during the November 7 field trip described previously. Habitat and terrain within and adjacent to the right-of-way are closely related. Therefore, it is recognized that an impact within the right-of-way may have a significant effect on adjacent habitat.

A series of subparallel low ridges cross the highway alignment at approximately a 65-degree angle on Government Island. Swales having closed independent drainage lie between these ridges. Two larger swales near the south side of the island, classified as Type I Wetlands (seasonally flooded basins or flats), are bisected by the right-of-way. Approximately 1.1 acres of wetlands lie within the right-of-way. Hydrologic data from 1946 through 1968 indicates that during exceptional years these basins may have contained water from Christmas through early August. However, under average stage conditions, the basins would not fill until May and cease to receive additional water after mid-July.

Such closed basins, although classed separately as wetlands, are a feature of the riparian zone as it develops in the floodway portions of rivers and streams. For this reason, these wetlands are placed in two habitat categories; wetlands and riparian habitat. The Riparian Zone of the Columbia River is considered "critical wildlife habitat," (Oregon, Areas of Environmental Concern, Battelle Institute, 1973).

Certain plants are characteristic (but not diagnostic) of Type I Wetlands. Two such plants were found in the two swales, Swamp knotweed (Polygonum coccineum), and Ragweed (Ambrosia artemisiifolia); the former is most indicative of hydric conditions. A more detailed investigation would probably reveal additional characteristic wetland species, although grazing has probably removed or destroyed many of these species. The wetland quality of these swales is also substantiated by aerial photography, topographic mapping, and reports of past waterfowl use when the island was a game management area.

Except in the vicinity of the southermost wetland, the impact area is covered by a moderately dense (approximately 70 percent to 80 percent crown closure) deciduous canopy which is dominated by Black Cottonwood (Populus trichocarpa) and Oregon Ash (Fraxinus latifolia). The area adjacent to the wetlands is meadow. Cattle grazing has severely modified the food and cover of the impact area. From the ground to a height of approximately six feet above the ground palatable vegetation has been grazed, browsed, or trampled to a state where only unpalatable plants (teasel, thistle, and wood rose) grow more than a few inches above the ground.

The OSHD is committed to mitigating the loss of wetlands habitat resulting from this project in a manner which is satisfactory to the U.S. Fish and Wildlife Service and to the Oregon Department of Fish and Wildlife. To date, six courses of action have undergone interagency study. A mutually satisfactory course of action has not been selected since two alternative courses of action are still under investigation.

## Conclusions

In summary, we hope this information will be suitable to allow timely processing of the Final Environmental Impact State/4(f) Statement and to rescind your objection to issuance of a bridge permit by the Coast Guard. The position of the Oregon Highway Division, in consultation with the Oregon Division of the Federal Highway Administration, is that all planning has been done to minimize harm to Government Island in the form of alternative design selection, wetland replacement, and recreationist and wildlife movement on the island, in accordance with sound engineering and economic practices of today.

The Oregon State Highway Division has prepared this letter with the purpose of informing you of the latest status of this project and resolving remaining concerns of your agency in anticipation of seeking approval of the Final Environmental Impact Statement/4(f) Determination.

Sincerely,

F. B. Klaboe, Administrator
and State Highway Engineer

cc: Glen L. Green, FHWA, Salem
Bureau of Outdoor Recreation, Seattle
U. S. Coast Guard, Seattle
Bureau of Sports Fisheries and Wildlife, Portland
Port of Portland
Oregon State Wildlife Commission
U. S. Army, Corps of Engineers, Portland

bc: Doug Myhre, HNTB, Seattle
George M. Baldwin
R. L. Schroeder
J. H. Versteeg
W. J. Hart
Gary Potter
E. S. Hunter
R. N. Bothman
J. B. Boyd
L. W. Rulien

(Environment) srb

EXHIBIT D

1859

**OREGON STATE**
**HIGHWAY DIVISION**

ROBERT W. STRAUB
GOVERNOR

F. B. KLABOE
Administrator and
State Highway Engineer

December 31, 1975

Mr. Don Byers
Secretary-Treasurer
Portland Yacht Club
1241 N. E. Marine Drive
Portland, OR 97211

Dear Mr. Byers:

Corps of Engineers Public Notice
No. 071-OYA-1-001913
Columbia River Bridge (I-205)
South Channel

Your December 11 letter to the Corps of Engineers concerning the subject public notice has been referred to this office for reply.

The small amount of dredging required at the west end of Lemon Island is for the purpose of providing the contractor's floating equipment with access to the south channel. In order that the dredged area stay open as long as possible, the material removed will be side cast to the west of the area. This will keep the material from being washed back into the channel and provide potential users access through the channel for the maximum time possible.

We believe the dredged area will temporarily improve access to the south channel for boaters. The natural filling process of the river will probably cause the channel to return to its natural condition in a few years but during the interim, improved access should exist.

Very truly yours,

R. L. Schneider
for

E. S. Hunter
Deputy State Highway Engineer

cc F. R. Brockschink
Chief, Regulatory
Functions Branch
U. S. Corps of Engineers

Mr. H. A. Schell
Division Bridge Engineer
Federal Highway Administration

RWE:ag ja

Form 81-734-3123

**PORTLAND YACHT CLUB**

41 N. E. MARINE DRIVE
ORTLAND, OREGON 97211

TELEPHONE
285-1922

December 11, 1975

Department of the Army
Portland District Corps of Engineers
P. O. Box 2946
Portland, Oregon 97208

Re: NPPND-RF-1
Notice #071-0YA-1-001913

Atten: A. J. Heineman,
Chief, Navigation Division

Dear Mr. Heineman:

The membership of Portland Yacht Club has seen the referenced notice and noted its effect on the waters they use.

We believe that the effect can only be beneficial. It is suggested, however, that no material be "side cast" as it will undoubtedly find its way into the shallow side channels and reduce their usefullness.

Sincerely yours,

Don Byers,
Secretary-Treasurer

DEPARTMENT OF DEFENSE
UNITED STATES OF AMERICA

DEPARTMENT OF THE ARMY
PORTLAND DISTRICT, CORPS OF ENGINEERS
P. O. BOX 2946
PORTLAND, OREGON 97208

REPLY TO ATTENTION OF: NPPND-RF

16 December 1975

Mr. E.S. Hunter
Assistant State Highway Engineer
Highway Building
Salem, OR 97310

Dear Mr. Hunter:

Inclosed is a copy of correspondence received in response to Public Notice No. 071-OYA-1-001913 (Columbia River mile 111.2 - Dredging).

The policy of the Portland District is to allow an applicant the opportunity to comment on objections or questions raised in connection with his permit application. As applicant, you should determine the proper approach for satisfying adverse reaction to your proposed project. Possible methods may include (1) supplying concrete and demonstrable evidence that the objection is ill-founded, (2) agreeing to observe appropriate corrective or preventive conditions, (3) redesign of contemplated work, (4) submission to this office of evidence that a covering agreement of approval from the objector has been secured, or (5) supplying the inquiring party with the information requested. Other methods, of course, for satisfying objections or questions may occur to you. Copies of all replies and of any final resolution or disposition of each problem should be furnished this office so that the nature of any solution may be fully evaluated before a permit is issued.

☐ Since the objection or question is from a Federal, state or local governmental or quasi-governmental agency, we ask that you reply directly to that agency.

☒ Since private individuals or groups are concerned, you may wish to reply directly to them in the fostering of improved public relations. If you prefer, you may respond directly to this office with appropriate views and facts.

I cannot emphasize too strongly that the better your answer or agreement satisfies the objections or questions, the sooner the processing of your application can be completed. Also, a lack of responsive action on your part may preclude issuance of the requested permit.

Sincerely yours,

Incl Cpy ltr Ptld Yacht Club dtd 11Dec75

FR Brockschink
F. R. BROCKSCHINK
Chief, Regulatory Functions Branch

EXHIBIT B

FORM 81-734-3030

OREGON STATE HIGHWAY DIVISION
INTER-OFFICE CORRESPONDENCE
November 14, 1975
Salem, Oregon 97310

FILE: ENV 2-1

FROM: Gary A. Potter, Manager GaP
Environmental Section

SUBJECT: Government Island Inspection
Interstate 205

TO: MEMO TO THE FILES

On November 7, 1975 Oregon State Highway Division, Federal Highway Administration conducted a tour of Government Island for the purpose of inspecing the proposed bridge crossing and fill on the island.

Those in attendnace, and their respective agencies, are as follows:

| | |
|---|---|
| Robert T. Ewen, I-205 Project Engineer, OSHD | Metro Office |
| Jeff Zinn, Project Manager, OSHD | Salem |
| Bill Kappus, Environmental Coordinator, FHWA | Salem |
| Roger Powers, Biologist, OSHD | Salem |
| Gary A. Potter, Manager, Environmental Section, OSHD | Salem |
| Nancy Ellifrit, US Fish and Wildlife Service, Biologist | Portland |
| Richard Vining, HNTB | Seattle |
| Burt Paynter, Corps of Engineers | Portland |
| Harvey Lee, Corps of Engineers | Portland |
| Walter Hart, Bridge Design Engineer, OSHD | Salem |
| C. T. Christianson, FHWA | Salem |
| A. Sidney Malbonn, Bureau of Outdoor Recreation | Seattle |
| Bob Ellison, OSHD | Salem |
| Douglas C. Myhre, HNTB | Seattle |

The first part of the day was spent reviewing, on Government Island, the location of the bridge and the proposed fill. Survey stakes had been placed on the island to allow individuals to see on the ground, the centerline of the roadway, the ends of the structure, and the limits of the fill.

Following the inspection of Government Island, the same individuals met at the Metro Conference Room to discuss various features of the proposal and to try to resolve any remaining issues.

The first issue discussed was whether wetlands were present or not. U.S. Fish and Wildlife Service advised that there were two areas of category 1 type of wetlands that would be destroyed in part by the fill. There was considerable discussion as to design and/or possible measures of compensation. It was finally agreed that replacement of those wetlands could be accomplished by creating additional area adjacent to the fill, possibly by leaving sedimentation basins and sculpturing those basins as appropriate. It was agreed that the Highway Division and U.S. Fish and Wildlife Service would coordinate a design for replacement of those wetlands.

The Corps of Engineers asked for additional information as to dredging, wetlands, and sediment analysis. The State responded verbally supplying the required information, except in the case of sediment analysis requirements. Corps of Engineers stated that they would contact the Environmental Protection Agency to determine if a sediment analysis would be necessary.

The third issued discussed was that of the 4(f) lands and the Department of Interior's position on the project. Mr. Malbonn stated that the position of the Department of Interior was in agreement with the conclusion that there are no reasonable and prudent alternatives to the use of Government Island, but that not all planning to minimize harm had been done. Mr. Malbonn advised that he thought it would be appropriate for the Oregon State Highway Division, after discussion with the Port of Portland and Wildlife Commission, to send a detailed letter to the Secretary of Interior outlining our stance on the project and the reasons for elimination of an all structure alternative, and providing additional information as to the possibilities of insuring continued public use of the beaches and riparian lands of Government Island. (This letter should include documentation of OSHD efforts to encourage coordination between the Port of Portland and Department of Fish and Wildlife in planning for the future use of Government Island.) Mr. Malbonn also felt that we should discuss the shortening of the fill to allow more room for game and recreationists to pass under the bridge on the south side of the island, and so as not to disturb the class I wetlands.

GAP:sz

cc: F. B. Klaboe
E. S. Hunter
R. L. Schroeder
W. J. Hart
Bob Ellison
R. T. Ewen
R. N. Bothman

bc: Pieter T. Dykman
George Ramjoue'

EXHIBIT A

United States Department of the Interior

OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240

E3039
ER-75/221

MAY 5 1975

Dear Mr. Schroeder:

This is in response to your March 7 request for the Department of Interior's comments on the Draft Environmental/Section 4(f) Statement for the Lewis and Clark Highway, I-205, from Clark County, Washington, to S.E. Foster Road, Multnomah County, Portland, Oregon.

General Comments

We note that this is a revised draft environmental/Section 4(f) statement for this project. Our letter of March 12, 1973 (letter E of Chapter VIII - Consideration and Disposition of Comments, of the more recent statement), provided extensive comments on the project as originally conceived. Your response to those comments as summarized immediately following letter E satisfies many of our concerns except as indicated here. Those concerns which have been previously resolved will not be repeated in this correspondence.

The statement sufficiently describes project effects on fish and wildlife. We are pleased that the project may have a positive effect on the Fort Vancouver National Historic Site by reducing cross park traffic presently using State Highway 14 as access to the I-5 bridge.

We see no major problems regarding geology and only one potential hydrological problem not considered in this statement. It does not assess the impact of the planned storm sewer on ground water. The area to be sewered is a sizable part of the recharge area for the Portland terrace. Removing storm water from an area of that size will reduce the volume of recharge and, therefore, will affect the water levels in the local aquifer which is the source for a number of public and commercial supplies. Because recharge water serves to dilute sewage that is emplaced in the ground, the reduction of recharge also will affect ground-water quality. We believe the impact of these sewers warrants more detailed analysis.

Section 4(f) Comments

The context of this project has changed from that described in the initial statement. Whereas before it was closely coordinated with the former plan of the Port of Portland to expand the Portland International Airport northward into the Columbia River, it is now solely an interstate highway project as the Port has now eliminated that aspect of its expansion proposal. However, the Port, prior to abandoning its northward expansion plan, acquired all but 200 acres of Government Island from the Oregon State Game Commission; the Game Commission replaced the land lost to the Port with other lands; and the Port adopted a policy statement indicating that Government Island would be managed primarily for wildlife and recreation purposes in concert with other land uses which may be proposed as a result of current planning efforts. It is because of this current recreational and wildlife use that Government Island falls in the Section 4(f) category.

The new statement describes additional alternatives to the use of a portion of the western end of Government Island. The initial statement confined its discussion of alternatives solely to a bridge versus tunnel alternative. We concurred, at that time, that there was no feasible or prudent alternative to the bridge proposal because of the tremendous cost of a tunnel proposal. The alternative routes now described on Plate 42a are also considered not feasible or prudent. Available information indicates that each of these would create 4(f) situations.

We, therefore, concur that there is no feasible or prudent alternative to the use of Government Island for this project. By use, we refer not only to the 10.5 acres that would be acquired for right-of-way, but also the impacts of noise and air pollution on the wildlife and recreation use of adjacent lands on Government Island.

We are concerned that not all planning to minimize harm to the Section 4(f) land appears to have been incorporated in the project. Chapter IV, Planning to Minimize Harm, pages 4-16 and 4-17, describes the 1969 agreement between the Port and the Oregon State Game Commission for replacement of Government Island as a mitigating measure for this interstate highway project. We cannot agree with this conclusion. The 1969 agreement was initiated as part of the Port's former plan to expand the airport and is not attributable to the independent interstate highway project.

The only other mitigating measure discussed is the design of the bridge itself. Of the design options discussed on pages 4-14 and 4-15, the continuous bridge option is preferable. Disruption and permanent loss of wildlife habitat would be substantially reduced and adverse impacts to fishery resources caused by dredging would be eliminated. Such a completely elevated bridge would allow longitudinal movement of larger wildlife, particularly black-tailed deer, and recreationists. There may be some reduced mobility of small mammal populations.

Because of the Port's altered plan for the airport expansion, the penultimate paragraph of our March 12, 1973, letter is no longer applicable. At that time, we had suggested that the inclusion of certain recreational items, formerly proposed by the Port, would satisfy the Section 4(f) requirement to include all possible planning to minimize harm. The alteration of the Port's plan now precludes most of these items because the extensive dredging essential to accomplishing most of them will not occur.

However, we believe Section 4(f) could be satisfied if the Oregon State Game Commission entered into an agreement with the Port and, if necessary, other appropriate local recreation authorities to insure in perpetuity a public right to use the beaches and a riparian strip of Government Island for recreational purposes. Without such a provision, it appears the Port could unilaterally dispose of its equity in the Island with a resultant loss of public recreational use. Since the Island had been acquired by the Port initially for airport expansion, this could occur unless the kind of legally-binding agreement, that is a deed restriction, that we propose is included.

The importance of a relatively wild island accessible only by boat in the midst of a major metropolitan area cannot be over emphasized. Measures to insure its continued public use would be of immeasurable value to future generations and would fully satisfy the requirement of Section 4(f) to minimize harm.

Environmental Statement Comments

1. Timing of Dredging Activities: The statement contradicts itself in several instances on the best time for dredging activities so far as fish resources are concerned. Page 3-62, second paragraph, says there are fewer migrating fish from late July to early September, and this is an advantageous time to dredge. Page 3-64, second from last paragraph, states that the preferred time for dredging is late October to February because the number of salmonids present is lowest. This same contradiction appears on page 3-190, last paragraph, and page 3-191, third paragraph; and in the Section 4(f) statement on page 4-9, fourth paragraph. Adult coho and fall chinook salmon migrate through the project area in late summer while peak migration for winter steelhead occurs from December to February. Dredging during the October to December period would least interfere with fishery resources.

2. Water Resources: The statement contains some misinformation or lacks data regarding water resources in several places as indicated below:

Page 3-52, 2nd paragraph. While little irrigation water is withdrawn from the Columbia River for irrigation downstream from river mile 240, in the past few years the situation has changed considerably above that point. Present irrigation season withdrawals between Arlington, Oregon, and Snake River mouth total approximately 4,000 cfs, with over 200,000 acres being irrigated. Imminent increases in water withdrawal and irrigated acreages are planned.

Page 3-53. Temperature data reported by the U.S. Geological Survey (Circular 551) shows annual low temperatures in the 30's (not 40's) during January and February (not March). Highest temperatures occur in August but generally are less than 70°F.

Lowest flows in the Columbia River generally occur in September and October, sometimes in November, rarely in August. (See U.S. Geological Survey Circular 550.) Before regulation, January and February were sometimes the lowest flow months.

The Geological Survey monitors water quality at Warrendale and The Dalles. Survey data show lower turbidity values (commonly 2 JTU) than those given.

Page 3-55. On line 6, the fluoride value should be 3.2 ppm, not 32 ppm.

Page 3-58. On line 6, the Johnson Creek flows given are at the gaging station at stream mile 10.2. The drainage area above the gage is only 28.2 $mi^2$, not the entire basin as referred to on page 3-55.

Page 3-59. In paragraph 4, it should be noted that recent investigations by the State Engineer's office and DEQ show that Columbia Slough also is affected by domestic sewage-disposal practices. (See also comment on page 3-68.

Page 3-62. Here and elsewhere, the term "ground water" should be changed to the two-word form accepted and used by most hydrologists and scientific organizations.

Page 3-68. Paragraph 1 - Most of the single-family sewage-disposal systems utilize cesspools, not septic tanks.

Page 3-70. Paragraph 5 is incorrect. In the project area, much of the subsurface material is a mixture of clay, sand, and pebbles.

3. Wetlands:

Page 3-55, 4th paragraph. Although most of the lands between Columbia Slough and the river are diked and drained, the area continues to meet the criteria for a Type I wetland as set forth in USF&WS Circular 39, *Wetlands of the United States*. Type I wetlands are seasonally flooded basins or flats in which the soil is covered with water or waterlogged during variable seasonal periods; but usually well drained during most of the growing season. Ponding occurs in these areas during the winter precipitation.

Summary Comments

Because of the Department of the Interior's continuing concern for the measures to minimize harm to the Section 4(f) lands to be traversed, we would be willing to work with you in the resolution of our concerns and we would be willing to review on a technical assistance basis any subsequent material you may prepare. The field office assigned the responsibility for coordination with you in this effort is the Regional Director, BOR, Federal Bldg., 915 Second Avenue, Seattle, Washington 98174.

In-as-much as we do not now concur that the present documentation includes all measures to minimize harm, we would expect further consultation with this Office about the Section 4(f) facet. In our opinion, the most propitious time for this would be when you have completed consideration and resolution of the suggestions and recommendations in this letter.

Sincerely yours,

(Sgd) Stanley D. Doremus

Deputy Assistant Secretary of the Interior

Mr. R. L. Schroeder
Assistant State Highway Engineer
Project Management Section
Oregon State Highway Division
Salem, Oregon 97310

EXHIBIT E

GAME
COMMISSION

OFFICE OF THE DIRECTOR

P. O. BOX 3503 ° 1634 S.W. ALDER ST. ° PORTLAND, OREGON ° 97208 ° Ph. 222-967

TOM McCALL
GOVERNOR

COMMISSIONERS
GEORGE L. HIBBARD, Chairman
J. PAT METKE, Vice Chairman
JOHN P. AMACHER, Member
JOSEPH W. SMITH, Member
JAMES W. WHITTAKER, Member

JOHN W. McKEAN
State Game Director

Hand Delivered 11-21-69

November 20, 1969

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| Public Affairs |  | X |
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The Port of Portland
P. O. Box 3529
Portland, Oregon 97208

Gentlemen:

On November 21, 1969, the State of Oregon, acting by and through the Oregon State Game Commission, conveyed Government, Lemmon, and McGuire Islands to The Port of Portland. On that same date, the Oregon State Game Commission and The Port of Portland entered into a contract whereby (a) the Port will provide the Game Commission with $900,000.00 over a period of not to exceed four years, and (b) the Game Commission will use these funds to acquire suitable replacement lands. The program to be carried out by the Game Commission under this contract will result in an orderly program for the acquisition of exchange properties of equal or superior useful value to carry out the statutory objectives and purposes of the Game Commission.

This letter shall serve as evidence that the State of Oregon is satisfied with the program for the exchange of appropriate lands satisfactory to the State in exchange for the State's land management areas of Government, Lemmon and McGuire Islands.

Very truly yours,

Oregon State Game Commission

George L. Hibbard

George L. Hibbard, Chairman

8905

BR 9555

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**OREGON STATE**
**HIGHWAY DIVISION**

HIGHWAY BUILDING • SALEM, OREGON • 97310

ROBERT W. STRAUB
GOVERNOR

F. B. KLABOE
Administrator of Highways

December 24, 1975

Mr. R. Jack Allen
Sverdrup & Parcel and Associates, Inc.
P O Box 369
505 106th NE
Bellevue, WA 98004

NOTED
E. S. HUNTER

Dear Mr. Allen:

Columbia River (I-205) Bridge
Claim for Foundation Redesign

This is in regard to your request for compensation for the extra work involved in redesign of the foundations for the Washington bike path abutment, abutment 1, and piers 2 through 4. We have made a thorough study of the documents listed in your letter of July 21, 1975 along with other background material and can find no justification for the claim. As indicated in the third paragraph of your letter, our approval of foundation criteria at any stage of the design was always subject to verification by the test pile program which was initiated by your organization.

Based on the information received, we must disallow your request. If you have additional information to present in support of the claim we will give it due consideration.

Very truly yours,

ORIGINAL SIGNED
WALTER J. HART
Walter J. Hart
Bridge Engineer

PMO/ag
cc F. B. Klaboe
E. S. Hunter
R. N. Bothman
G. Andrews
R. L. Carroll

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**OREGON STATE HIGHWAY DIVISION**

HIGHWAY BUILDING • SALEM, OREGON • 97310

ROBERT W. STRAUB
GOVERNOR

F. B. KLABOE
Administrator of Highways

BR 9555

October 29, 1975

RECEIVED
STATE HWY ENGR
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REFER TO
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Info Inves R/D D/R Sign Act File

NOTED
E. S. HUNT

Mr. R. Jack Allen
Sverdrup & Parcel and Associates, Inc.
P. O. Box 369
Bellevue, WA 98004

Dear Mr. Allen:

Contracting Schedule
Columbia River (I-205) Bridge
Bridge 9555

The best current estimate is that the first contracts for the Columbia River (I-205) Bridge could be advertised in the last quarter of 1976. It was previously determined that the Washington approach spans, Spans 1 through 10, would be advertised as one project. We would appreciate received from you a schedule of alternate construction contracts for the remainder of the project.

The indications at this time are that the fill on Government Island will be approved. The design of the embankment section on the island and the south channel crossing will be done by the State's staff.

There is one point that should be kept in mind in arriving at any projected contracting schedule. The material dredged to provide for access and construction of the piers north of Government Island is to be disposed of as embankment on Government Island.

The total projected cost of the Columbia River crossing from Marine Drive to the Lewis and Clark Highway is approaching $185 million. Several alternate contracting schedules will have to be considered simply due to the project size and problems of funding obligations.

Very truly yours,

ORIGINAL SIGNED
WALTER J. HART

Walter J. Hart
Bridge Engineer

WJH:dh

cc E. S. Hunter
C. S. Gloyd
R. L. Carroll
R. N. Bothman

8905 Form FHWA 121 (Rev. 5-73)

Consult.

UNITED STATES GOVERNMENT

# Memorandum

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
Box 300
Salem OR 97308

DATE: September 10, 1975

In reply refer to: 1041EC.2

SUBJECT: Oregon Project I-205-7(2)303
Supplemental Agreement with Sverdrup and Parcel and Associates for Supplemental Foundation Investigation at Piers 12 and 13

FROM : G. L. Green, Division Administrator

TO : Mr. F. B. Klaboe, Administrator & State Highway Engineer
Salem, Oregon

We have reviewed the August 15 letter form agreement with Sverdrup and Parcel and Associates, Inc. for supplemental foundation investigation at Piers 12 and 13 and possibly at Piers 11 and 14 and find it satisfactory. We are returning one signed copy of that letter indicating our formal approval. You may consider that FHWA authorization to proceed is granted effective August 18, 1975.

In reviewing the current foundation information we note there are only two samples of the Troutdale gravels in holes B-24 and B-26. These samples are in the top section of the gravels. We feel it desirable to verify this material within the Troutdale layer by taking at least one sample from each additional hole drilled under this supplement, even if you have to adjust the amounts allowed for sampling to accommodate it. Although we are not completely familiar with the "In-Situ Modulus of Deformation Testing" we understand that it has been used extensively in Europe and is quite valuable for estimating settlements. We are looking forward to its use on the Columbia River Bridge. You may wish to evaluate its use for your other bridge foundation work.

G. L. Green

cc:
OSHD (Ellison)

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**OREGON STATE**
**HIGHWAY DIVISION**

HIGHWAY BUILDING • SALEM, OREGON • 97310

ROBERT W. STRAUB
GOVERNOR

F. B. KLABOE
Administrator of Highways

August 15, 1975

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Mr. Jack Allen, P.E.
Sverdrup & Parcel and Associates, Inc.
P O Box 369
Bellevue, WA 98004

Dear Jack,

Columbia River (I-205) Bridge
Supplemental Foundation Investigation

Your proposal of June 17, 1975, for supplemental foundation work at the main piers of the subject structure has been reviewed and is satisfactory to us. This work will be done under our original agreement dated September 30, 1970, which makes provison for a Supplemental Foundation Investigation. The work to be done will be as described in your June 17, 1975 proposal and not the work described in the original agreement. It is recognized that activities beyond your control involving litigation with, and subsequent abandonment of plans for expansion of the Portland Airport have caused delays to this project and your work. The inflationary effect of these delays, plus the additional sampling and testing necessary, increases the cost of this work above that indicated in the original agreement. Payment for any work in excess of that amount set up for the Supplemental Foundation Investigation will be made from the contingencies included in the agreement.

Work at piers 12 and 13 should begin as soon as possible. Work at piers 11 and 14 will be done only if determined necessary by the findings at piers 12 and 13. If required, the work at piers 11 and 14 will be done in conjunction with work at piers 12 and 13 but will not be done unless authorized by the State.

NOTED
E. S. HUNTER
8-26-75

8-21-75
cc: Hart

RECEIVED
AUG 18 1975
SVERDRUP & PARCEL
& ASSOCIATES INC.

In order that the State may make a timely decision as to the need for work at piers 11 and 14, Sverdrup & Parcel shall monitor the results at piers 12 and 13 and make recommendation to the State as to the need for the work at piers 11 and 14.

If this is satisfactory to you, please indicate your approval by endorsing the original of this letter in the space provided and return same to me.

Very truly yours,

E. S. Hunter
Deputy State Highway Engineer

cc Washington Department of Highways
Walter J. Hart
V. E. Skoog

Amendment satisfactory to
Sverdrup & Parcel and Associates, Inc.

Jack Allen
By R. Jack Allen, Manager

August 18, 1975
Date

8905
Consult.

BR 9555

August 13, 1975

Mr. George H. Andrews, Director
Washington Department of Highways
Highway Administration Building
Olympia, Washington 98504

Dear Mr. Andrews:

Columbia River (I-205) Bridge
Consultant Agreement
Additional Test Holes

As a result of pile tests and plate load tests for the subject structure, the pile support originally designed for pier 13 has been eliminated and the pier will be founded on a spread footing in the dense Troutdale Formation found at the site. This change will increase the area over which bridge loads influence the foundation materials and that area may extend to the compressible strata underlying the Troutdale Formation. In order that reliable settlement predictions can be made, additional borings into, and testing of, the underlying material are required at piers 12 and 13.

Mr. Gloyd's letter of May 28, 1975 approved this additional work. On the basis of Mr. Gloyd's letter we are proceeding with an agreement with Sverdrup & Parcel to perform this work. The agreement also includes provisions for additional test holes at piers 11 and 14, if such investigation is warranted by the findings at piers 12 and 13. Insitu testing is to be accomplished by use of the Goodman Jack or Menard Pressuremeter as suggested in Mr. Gloyd's letter.

This work will constitute the supplemental foundation investigation provided for in the original agreement with Sverdrup & Parcel.

Attached is a copy of the proposed agreement with Sverdrup & Parcel and a justification of costs. Upon receipt of approval for this agreement from FHWA, we will inform Sverdrup & Parcel that they may proceed with the work.

Very truly yours,

E. S. Hunter
Deputy State Highway Engineer

Attachment

cc: Mr. R. L. Carroll
District Engineer
Washington Department of Highways
P. O. Box 1717
Vancouver, Washington 98663

bc: F. B. Klaboe
W. J. Hart
Glen L. Green
Jack Allen, Sverdrup & Parcel

File Br. 9555

August 8, 1975

Mr. Glen Green
Division Engineer
Federal Highway Administration
477 Cottage St. NE
Salem, OR 97308

Dear Mr. Green:

Columbia River (I-205) Br.
Consultant Agreement
Supplemental Foundation Investigation

The original agreement between the State of Oregon and Sverdrup & Parcel and Associates, Consultant Engineers, dated September 30, 1970, for design of the I-205 Bridge across the Columbia River made provisions for a supplemental foundation investigation. It has now been determined that such an investigation is necessary because of a change in design for pier 13.

The change in design from a pile support for pier 13 (south side of the main navigation channel) to a spread footing requires construction by caisson method instead of cofferdam. The increased size of this pier necessitates additional foundation exploration at this location. The original support for this pier was point bearing piles driven to refusal in the dense Troutdale formation. The use of a caisson instead of the previously proposed piling increases the area over which bridge loads influence the foundation materials. This area may extend into the compressible strata underlying the Troutdale formation and would result in settlement of the pier during and after construction.

Mr. Glen Green
August 8, 1975
Page Two

In order to determine the magnitude of such settlement and compensate for same during construction, it is necessary to determine the depth of the dense formation and the characteristics of the underlying compressible layer.

This work is to be done as the supplemental foundation investigation set up in the original agreement.

The cost of the proposed work is $84,635 and includes $63,490 for work at piers 12 and 13 and $21,145 for work at piers 11 and 14. The exploration work at piers 11 and 14 will be done only if the findings at piers 12 and 13 indicate a need for same. The work at pier 12 is deemed necessary in order to obtain an indication of the extent of the underlying strata.

The total cost of this work is in excess of the $43,410 set up for the work in the original agreement. This excess ($41,225) is to be covered by the contingent amounts set up in the agreement. Such contingencies are the difference between the total limiting amount of the original agreement and the estimated cost of the actual work covered by the agreement. The cost of the work proposed herewith can be done within the limiting amount of the original agreement.

Attached is the Consultant's proposal for the work to be done and the State's justification for the work and the cost.

Your approval of the work as proposed is requested.

Very truly yours,

E. S. Hunter
Deputy State Highway Engineer

Attachment

RWE:ag js

bc: F. B. Klaboe
Walt Hart
L. L. Wallace
Jack Allen, Sverdrup & Parcel

SHINGTON STATE
IGHWAY COMMISSION
EPARTMENT OF HIGHWAYS

ighway Administration Building
lympia, Washington 98504 (206) 753-6005

Daniel J. Evans - Governor
G.H. Andrews - Director

May 28, 1975

Mr. Walter J. Hart, Bridge Engineer
Oregon State Highway Division
Highway Building
Salem, Oregon 97310

Subject: I 205 Columbia River Bridge
SR 205 L4007 I-205-1-16-7

Dear Sir:

Thank you for your letter of May 20, conveying additional data to us regarding the need for additional test holes at piers 12 and 13.

We concur with your recommendation to proceed with the drilling of additional test holes at piers 12 and 13. In addition, we recommend that any such drilling program also include some form of in place testing. Such testing can be accomplished by use of the Goodman Jack or the Menard Pressuremeter. This is particularly important since the relative stiffnesses of the two strata will influence the load stress distribution and consequently the deflection calculation.

The figure of 7.8 inches of vertical settlement of these piers has been mentioned. Should the results of the recommended program bear out this magnitude of deflection, how does the consultant propose to compensate for this in design and construction? Is there any possibility of unequal settlement at one pier with consequent pier tilting? We recommend that the final contract for the pier construction include a requirement for close monitoring of pier settlements during construction.

Our District Engineer, Mr. Carroll, has been receiving copies of pertinent correspondence regarding this structure. He has not, however, been receiving the enclosures to those letters. In order that he may be fully informed please include enclosure copies to Mr. Carroll with future correspondence.

Yours very truly,

C. S. Gloyd

C. S. GLOYD
Bridge & Structures Engineer

RECEIVED
JUN 3 1975
BRIDGE DIVISION

CSG:cg
WBH
cc: A. J. Peters
R. L. Carroll

Baker Ferguson, Chairman
A. H. Parker
Howard Sorensen
Virginia K. Gunby
Julia Butler Hansen
Cathlamet
Harold L. Boula
Secretary

SVERDRUP & PARCEL AND ASSOCIATES, Inc.
*Consulting Engineers*
505 - 106TH AVENUE N. E.
P. O. BOX 369
BELLEVUE, WASHINGTON 98004

June 17, 1975

Oregon State Highway Division
Highway Building
Salem, Oregon 97310

Attention: Mr. Walter J. Hart
Bridge Engineer

Gentlemen:

Subject: I-205 Columbia River Bridge, Bridge 9555
Engineering Proposal
Supplemental Foundation Investigation
Main Piers

We are pleased to submit this proposal for engineering services in connection with the Supplemental Foundation Investigation. The services include additional subsurface investigation for Piers 12 and 13 flanking the main river channel and, if required and approved by the State, for Piers 11 and 14.

Compensation for our services will vary as shown on the attached Fee Schedule, depending upon whether or not subsurface investigation is necessary at Piers 11 and 14, and is performed in conjunction with the investigation at Piers 12 and 13.

The firm of Cornell, Howland, Hayes & Merryfield will be retained by us to conduct the investigation. Also attached hereto is a copy of their proposal which details the scope of the investigation.

We hope that this proposal meets with your approval. However, if you have any questions, please contact us.

RECEIVED
JUN 19 1975
BRIDGE SECTION

Very truly yours,

SVERDRUP & PARCEL AND ASSOCIATES, Inc.

R. D. Bane

R. D. Bane, P. E.
Vice President

Attachments

# FEE SCHEDULE

## Foundation Investigation at Piers 12 and 13

| | | |
|---|---|---|
| CH2M Investigation and Report | Estimated | $ 60,490 |
| S&P Administrator Fee | Lump Sum | 3,000 |
| Total Fee | | $ 63,490 |

## Foundation Investigation at Piers 11 and 14
(Performed in conjunction with Piers 12 and 13)

| | | |
|---|---|---|
| CH2M Investigation and Report | Estimated | $ 20,145 |
| S&P Administrator Fee | Lump Sum | 1,000 |
| Total Fee | | $ 21,145 |

## Foundation Investigation at Piers 11 and 14
(Performed separately)

| | | |
|---|---|---|
| CH2M Investigation and Report | Estimated | $ 28,645 |
| S&P Administrator Fee | Lump Sum | 1,400 |
| Total Fee | | $ 30,045 |

Drilling, sampling, and testing are variable quantity items. Quantity paid for will be the actual quantity of work performed.

Mobilization, analysis of undisturbed samples, foundation report, and administrator fee are fixed quantity items, paid for on a lump sum basis.

CH2M HILL
engineers
planners
economists
scientists

11 June 1975

P6163.55

Sverdrup & Parcel and Associates, Inc.
505 106th Avenue, N.E.
P.O. Box 369
Bellevue, Washington 98004

Attention: Mr. Jack Allen

Gentlemen:

Subject: I-205 Columbia River Bridge
Main Channel Piers Subsurface Investigation

In accordance with our recent discussions with you, FHWA, and OSHD, we are pleased to submit this proposal to do additional subsurface investigation for the main channel piers (piers 12 and 13) of the proposed I-205 Columbia River Bridge. In addition, we have included additional subsurface investigation for piers 11 and 14, if required. We would propose to do the work under the same Engineering Agreement as our previous work on the project (agreement dated 30 September 1970), with the following notations or exceptions:

ARTICLE I - SCOPE OF WORK (Replace with the following:)

The consultant shall perform the following services in connection with the design of the main channel piers (piers 12 and 13) for the proposed I-205 Columbia River Bridge:

A. Do such foundation exploration as is necessary to establish proper foundation design criteria for the main channel piers.

The exploration shall consist of drillings to approximately elevation -220 msl. Borings will be taken to a greater depth if necessary to properly estimate settlement of the pier foundations. Drilling shall be by rotary drills. High pressure jetting is not permitted. Drilling in rock shall comply with ASTM Specification D-2113. No samples of the Columbia River Sands or the Troutdale formation gravels will be taken; only samples of the Sandy River mudstone (expected to occur below about elevation -140 msl) will be obtained.

Minimum explorations are as follows:

1. Two borings for each of the two main channel piers (piers 12 and 13) holes

2. 10 split tube samples

3. 10 undisturbed samples

4. 10 insitu modulus of deformation tests

5. One boring each for piers 11 and 14, if authorized by the engineer. Samples, insitu tests and laboratory tests will be performed as required.

All foundation inspection work -- drilling, sampling, testing, soils classification, and all other work in connection therewith, shall follow procedures outlined in the AASHO publication, "Manual on Foundation Investigation, 1967."

B. through F. (Same)

G. (Replace with the following:)

Prepare a report of the results of the subsurface investigation, settlement analysis, and foundation recommendations for the main channel piers.

ARTICLE 2 - THINGS TO BE DONE BY STATE - Same

ARTICLE 3 - TIME OF PERFORMANCE (Replace with the following:)

Consultant shall commence drilling from the river within 3 weeks after notice to proceed. Drilling and insitu testing will be completed 8 weeks after notice to proceed. Sequence of drilling shall be arranged to provide general information at the earliest time. Drilling, test and analysis information shall be furnished to the Engineer during the course of the work, as requested, and a completed draft report for review shall be submitted within 13 weeks after notice to proceed.

ARTICLE 4 - COMPENSATION AND PAYMENT

A. (Same), except - Quantity, Unit Cost, and Cost

**Piers 12 and 13**

| | Quantity | Unit Cost | Cost |
|---|---|---|---|
| Mobilization and Demobilization | | Lump Sum | $8,500 |
| Drilling, Rotary (water) | 600 LF | $ 36.65 | 21,990 |
| Drilling, Core (water) | 200 LF | 38.65 | 7,730 |
| Split Tube Sampling | 10 only | 7.00 | 70 |
| Undistrubed Sampling | 10 only | 20.00 | 200 |
| Insitu Modulus of Deformation Testing | 10 only | 800.00 | 8,000 |
| Laboratory Testing | | | |
| Modulus of Deformation | 20 only | 60.00 | 1,200 |
| Consolidation Tests | 20 only | 150.00 | 3,000 |
| Index Properties | 20 only | 65.00 | 1,300 |
| Analysis of Undisturbed Samples | | Lump Sum | 4,000 |
| Analysis of Insitu Modulus of Deformation Tests | | Lump Sum | 2,500 |
| Foundation Report | | Lump Sum | 2,000 |
| | | Total | $60,490 |

Piers 11 and 14 (if authorized by the Engineer)
(Performed in conjunction with Piers 12 & 13)

| | Quantity | Unit Cost | Cost |
|---|---|---|---|
| Mobilization and Demobilization | | | $ -0- |
| Drilling, Rotary (water) | 300 LF | 36.65 | 10,995 |
| Drilling, Core (water) | 100 LF | 38.65 | 3,865 |
| Split Tube Sampling | 5 only | 7.00 | 35 |
| Undisturbed Sampling | 5 only | 20.00 | 100 |
| Laboratory Testing | | | |
| Consolidation Tests | 10 only | 150.00 | 1,500 |
| Index Properties | 10 only | 65.00 | 650 |
| Analysis of Undisturbed Samples | | Lump Sum | 2,000 |
| Foundation Report | | Lump Sum | 1,000 |
| | Total | | $20,145 |

Piers 11 and 14 (if authorized by the Engineer)
(performed separately)

| | Quantity | Unit Cost | Cost |
|---|---|---|---|
| Mobilization and Demobilization | | Lump Sum | $ 8,500 |
| Drilling, Rotary (water) | 300 LF | $ 36.65 | 10,995 |
| Drilling, Core (water) | 100 LF | 38.65 | 3,865 |
| Split Tube Sampling | 5 only | 7.00 | 35 |
| Undisturbed Sampling | 5 only | 20.00 | 100 |
| Laboratory Testing | | | |
| Consolidation Tests | 10 only | 150.00 | 1,500 |
| Index Properties | 10 only | 65.00 | 650 |
| Analysis of Undisturbed Samples | | Lump Sum | 2,000 |
| Foundation Report | | Lump Sum | 1,000 |
| TOTAL | | | $28,645 |

B. Same

ARTICLES 5 through ARTICLE 17 - (Same)

The scope of this extended work will be very similar to the work performed in the previous two subsurface investigations, except we have added the option of including insitu modulus of deformation tests. We recognize sample disturbance to be one of the important factors in properly analyzing the settlement characteristics of the foundation materials, and we expect that we can better evaluate the magnitude and importance of the sample disturbance by peforming the insitu deformation tests. We would include this phase of the work only if authorized by the Engineer, and only if the results produce data beneficial to the analysis. We contemplate a rather simple supplementary report, discussing subsurface conditions, and settlement analysis for the proposed main channel piers. We recognize that time is critical, and because of weather and tight time schedules proposed for this work, advance information on the schedule and notice to proceed would be most helpful.

We have enjoyed working with you on this most interesting project. Please call if you have any questions.

Very truly yours,

John Ramage
John Ramage
Project Manager

for Edward G. Worth, Director
Geotechnical Engineering
by William J. Johnson

la

Columbia R. (I-205) Br.
Br. 9555
Consultant Design Agreement
Supplemental Foundation Investigation
(Part of Original Agreement)

## HISTORY

On September 30, 1970, the Oregon State Highway Division entered into an agreement with the consulting firm of Sverdrup & Parcel and Associates, Inc. for the design of the I-205 Bridge across the main channel of the Columbia River at Portland, Oregon (See original agreement). This agreement required the consultant to "do such foundation exploration as is necessary to establish proper foundation design criteria and submit a separate report of same". Exploration was to consist of drillings extending below the bottom of footings to a depth of twice the footing width and to a greater depth if necessary to properly estimate pile penetrations. A schedule for the drilling program was attached. Eight holes were to be drilled for the main channel spans, one at approximately the upstream and downstream limits of each pier.

By letter of December 23, 1970, the consultant advised the State that, "test holes for the Preliminary Foundation Investigation have disclosed conditions which require additional investigation beyond the minimum program set forth in our agreement", and requested that the drilling program be revised to allow deeper drilling and one additional test hole in the river. The enlarged drilling program was approved by letter of December 29, 1970.

In March, 1971, the consultant submitted the "Preliminary Foundation Investigation", which recommended spread footings for pier 12 (north side of main navigation channel) and point bearing piles for pier 13 (south side of main navigation channel). The piling to be driven to refusal in the dense Troutdale formation. Design of the bridge proceeded accordingly.

In October, 1973, the State entered into a supplemental agreement with the consultant for performance of test pile work and plate load tests. The report covering this work, "Foundation Load Test, I-205 Columbia River Bridge, was submitted to the State on August 5, 1974.

By letter of September 5, 1974, the consultant submitted revised "foundation concepts" based on results of the test piles and plate loads. These concepts continued with a spread footing design at pier 12 but changed pier 13 from pile support to spread footings. It was also indicated that pier 12 would be constructed by cofferdam methods and that pier 13, because of its increased size, would be constructed by caisson method. There was concern that the use of a caisson instead of the previously proposed piling at pier 13 would increase the area over which bridge loads influence the foundation materials and that this area might extend to the compressible strata underlying the Troutdale formation. The consultant recommended that additional borings into this underlying strata be made at pier 13 and also at pier 12 in order that reliable settlement predictions can be made. Drilling previously completed at these piers did not penetrate into this compressible underlying strata.

On October 7, 1974, personnel of the consultant, the State of Oregon, the State of Washington, and FHWA met to discuss this and other matters. The consultant was asked to make formal request for the additional boring work.

On February 10, 1975, the consultant made formal recommendation for the additional work. This submittal supplied a chronology of events leading to the necessity of the additional work and indicated a possible settlement of from 4 1/2" to 8.3" at pier 3. This was forwarded to FHWA by the State on March 24, 1975.

In a report dated April 9, 1975, the Assistant Foundation Engineer for the State recommended the additional work proposed by the consultant.

A memo dated April 15, 1975, from Mr. Cowdery, FHWA, to Mr. Glen Green, FHWA, indicated his concurrence with settlement predictions at pier 13 and suggested four alternate approaches to the problem:

1. Additional drilling at piers 12 and 13 to obtain samples and conduct consolidation tests
2. Drill on dry land in Washington and interpolate between borings, obtain samples and make consolidation tests.
3. Assume a 4 1/2" settlement at pier 13 and make borings and tests during construction. Make any necessary design changes resulting from tests by change order during construction.
4. Combination of 2 and 3.

On May 7, 1975, a meeting between the consultant, the State and FHWA was convened at the FHWA Portland office to determine the extent of the required foundation exploration. After discussion of all alternates it was agreed necessary to make additional borings at piers 12 and 13 and to provide for additional borings at piers 11 and 14 if warranted by findings at piers 12 and 13.

By letter of June 17, 1975, the consultant submitted a proposal for the additional work. Due to lack of detail, justification of the cost of the work has been time consuming.

The proposal, in form of a supplement to the original agreement, is herewith submitted.

COLUMBIA RIVER (I-205) BRIDGE
Br. No. 9555

CONSULTANT DESIGN AGREEMENT
Supplementary Foundation Investigation
(Part of Original Agreement)

## JUSTIFICATION - SUMMARY

The following pages contain justification of the unit costs of supplemental foundation investigation covered by the Design Supplemental Agreement which is the subject of this package. The items shown in the Consultant's proposal of June 17, 1975, are justified item by item on the basis of OSHD estimates and are summarized as follows:

| Item | Consultant's Proposal (Unit Price) | OSHD Estimate (Unit Price) | Variance |
|---|---|---|---|
| 1. Mobilization and Demobilization | 8,500.00 | 9,602.00 | +12.9% |
| 2. Drilling, rotary | 36.65/ft. | 37.87/ft. | +03.3% |
| 3. Drilling, core | 38.65/ft. | 39.01/ft. | +0.9% |
| 4. Split Tube Sampling | 7.00 ea. | 17.36 ea. | +148% |
| 5. Undisturbed Sampling | 20.00 ea. | 30.55 ea. | +52.7% |
| 6. Insitu Modulus of Deformation Test | 800.00 ea. | 757.15 ea. | -5.6% |
| 7. Laboratory Testing | | | |
| Modulus of Deformation | 60.00 ea. | 70.00 ea. | +16.7% |
| Consolidation Tests | 150.00 ea. | 150.00 ea. | 0.0 |
| Index Properties | 65.00 ea. | 64.00 ea. | -1.6% |
| 8. Analysis of Undisturbed Samples | 4,000 (lump) | 3,888 | -2.9% |
| 9. Analysis of Insitu Modulus of Deformation Tests | 2,500 (lump) | 2,445 | -2.2% |
| 10. Foundation Report | 2,000 (lump) | 1,997 | -0.1% |

In general the State's estimate of individual unit prices is over or within 5 percent under the unit prices shown on the Consultant's proposal and justify same.

In the first pages of the following justification, wage rates and equipment rental rates are established on an hourly and daily basis including the Consultant's overhead and profit additives (for subconsultants $CH_2M$-Hill, Raymond International and Foundation Science, Inc.) and are used in the following estimate of cost for each item. The salary overhead, general and administrative overhead allowances are higher than those used in the original agreement but are considered reasonable when considering the effect of inflation in the interim. The project allowance of 15% is the same as used in previous supplements.

## COMPARISON OF COSTS
## CONSULTANT'S PROPOSAL AND OSHD ESTIMATE

| Piers 12 and 13 | Quantity | Consultant Unit Price | Consultant Cost | OSHD Est. Unit Price | OSHD Est. Cost |
|---|---|---|---|---|---|
| Mobilization and Demobilization | | Lump Sum | 8,500 | | 9,602 |
| Drilling, Rotary, Water | 600 l.f. | 36.65 | 21,990 | 37.87 | 22,722.00 |
| Drilling, Core, Water | 200 l.f. | 38.65 | 7,730 | 39.01 | 7,802.00 |
| Split Tube Sampling | 10 only | 7.00 | 70 | 17.36 | 173.60 |
| Undisturbed Sampling | 10 only | 20.00 | 200 | 30.55 | 305.50 |
| (Insitu Modulus of (Deformation Testing — | 10 only | 800.00 | 8,000 | 757.15 | 7,571.50 |
| Laboratory Testing Modulus of Deformation— | 20 only | 60.00 | 1,200 | 70.00 | 1,400.00 |
| Consolidation Tests | 20 only | 150.00 | 3,000 | 150.00 | 3,000.00 |
| Index Properties | 20 only | 65.00 | 1,300 | 64.00 | 1,280.00 |
| Analysis of Undisturbed Samples | | Lump Sum | 4,000 | | 3,888.00 |
| Analysis of Insitu Modulus of Deformation Tests | | Lump Sum | 2,500 | | 2,445.00 |
| Foundation Report | | Lump Sum | 2,000 | | 1,997.00 |
| | Total | | 60,490 | | 62,186.60 |
| | | | | | (+2.8%) |

## COMPARISON OF COSTS
## CONSULTANT'S PROPOSAL AND OSHD ESTIMATE

Piers 11 and 14
(Performed in conjunction with Piers 12 and 13)

| | Quantity | Consultant Unit Price | Consultant Cost | OSHD Est. Unit Price | OSHD Est. Cost |
|---|---|---|---|---|---|
| Mobilization and Demobilization | | | -0- | | -0- |
| Drilling, rotary, water | 300 l.f. | 36.65 | 10,995 | 37.87 | 11,361.00 |
| Drilling, core, water | 100 l.f. | 38.65 | 3,865 | 39.01 | 3,901.00 |
| Split Tube Sampling | 5 only | 7.00 | 35 | 17.36 | 86.80 |
| Undisturbed Sampling | 5 only | 20.00 | 100 | 30.55 | 152.75 |
| Laboratory Testing | | | | | |
| Consolidation Tests | 10 only | 150.00 | 1,500 | 150.00 | 1,500.00 |
| Index Properties | 10 only | 65.00 | 650 | 64.00 | 640.00 |
| Analysis of Undisturbed Samples | Lump Sum | | 2,000 | (50% Piers<br>(12 & 3 ) | 1,944.00 |
| Foundation Report | Lump Sum | | 1,000 | | 988.50 |
| | | Total | 20,145 | | 20,574.05 |
| | | | | | (+2.1%) |

## WAGE RATES

### $CH_2M$ Hill

The following wage rates are as reported by $CH_2M$ Hill for the classifications to be working on this project.

E-7 113.00/day x *284% = 321/day = 40.13/hr.
E-4 80.00/day x 284% = 227/day = 28.38/hr.
E-2 63.00/day x 284% = 179/day = 22.38/hr.
EG-3 57.00/day x 284% = 162/day = 20.25/hr.

*Multiplier, $CH_2M$ Hill for overhead and profit as follows:

| | | |
|---|---|---|
| 1. | Salary | 100.00% |
| 2. | Salary Overhead | 31.66 |
| 3. | Gen. Admin. Overhead | 115.28 |
| | | 246.94 |
| 4. | Fee, 15% of 1+2+3 | 37.04 |
| | Total Multiplier | 283.98% |

# WAGE RATES

Raymond International (drill crew)

The following wages are as shown in the OSHD Schedule of Minimum Hourly Wage Rates (July 1975).

Hoisting and Portable Engineers, Drilling
  Driller (Group 10) 9.08/hr + * 2.25 = 11.33/hr.
  Drill Helper (Group 2) 8.44/hr + 2.25 = 10.69
Floating Equipt. (Barge)
  Boatman (Group 2) 8.44/hr. + 2.25 = 10.69
    Drill crew, Total direct labor = 32.71/hr.

*From Operating Engineers, Portland
  1.00/hr. pension
  0.50/hr. vacation
  0.75/hr. health & welfare
  2.25/hr. Total

Assume 250% multiplier (Raymond International) for overhead, taxes, insurance, and fee.

For computation:

Total Drill Crew Wages
  32.71/hr (2.50) = 81.78/hr.
  8 hrs. x 81.78/hr = 654.24/day

## EQUIPMENT RENTAL RATES

The following equipment rental rates are as provided by the OSHD Cost Analysis Unit, Construction Section:

| | | |
|---|---|---|
| Barge, 0-400 ton | 8.25/hr = | 66.00/day |
| Tug, 150-300 hp (operated) | 39.50/hr = | 316.00/day |
| Drill, rotary | 9.23/hr = | 74.00/day |
| Boat, 15' Skiff w/Motor | = | 30.00/day |
| Truck, 4-ton | 9.00/hr = | 72.00/day |
| Pickup, 1/2 ton | 3.62/hr = | 29.00/day |

## 1. Mobilization and Demobilization

### Raymond International

Assume 1/2 day to load equipment and drill on barge, one day to tow barge to site, anchor and position over test hole location.

**Labor** (Load)

| | |
|---|---|
| Drill Crew, 1/2 day @ 654/day = | $327.00 |
| Truck Driver [8.53/hr + 2.25 (250%)]; 2 day @ 215.60 = | 431.00 |

**Equipment** (Load)

| | |
|---|---|
| Drill barge 1/2 day @ 66/day = | 33.00 |
| Truck, 4 ton 2 day @ 72/day = | 144.00 |
| Pickup, 1/2 day @ 29/day = | 15.00 |
| Total (load) | $950.00 |

**Labor** (tow & position)

| | |
|---|---|
| Drill Crew, 1 day @ 654 = | 654.00 |

**Equipment** (tow & position)

| | |
|---|---|
| Barge, 1 day @ 66.00 = | 66.00 |
| Tug, 1 day @ 316.00 = | 316.00 |
| Boat, 1 day @ 30.00 = | 30.00 |
| Pickup, 1 day @ 29.00 = | 29.00 |
| Total (tow & position) | $1,095.00 |

| | |
|---|---|
| Mobilization, Total load, tow & position = | $2,045.00 |
| Demobilization, reverse of above = | 2,045.00 |
| Total, Raymond International = | $4,090.00 |

1. Mobilization and Demobilization (cont.)

**CH$_2$M Hill**

Project Supervision - Organization of project, contact various contractors and suppliers, obtain permits, agreements, et cetera.

Labor

| | | |
|---|---|---|
| E-7, 3 days @ 321.00/day = | | $ 963 |
| E-4, 5 days @ 227.00/day = | | 1,135 |
| E-2, 5 days @ 179.00/day = | | 895 |
| | Subtotal | 2,993 |

Horizontal and Vertical Control - Re-establish control points and bench marks, position drill barge on test hole location - estimate 3 days for survey crews.

| | | |
|---|---|---|
| E-2, 3 days @ 179.00/day = | | $ 537 |
| (2) EG-3, 6 man-days @ 162.00/day = | | 972 |
| | Subtotal | $1,509 |
| | Total, CH$_2$M Hill | $4,502 |

1. Mobilization and Demobilization (cont.)

Foundation Testing, Inc.

Furnish Insitu Testing Equipment

Provide test equipment, assemble, cablibrate, transport to job site, remove from site, disassemble and store. Assume 2 men, 2 days.

| | |
|---|---|
| Labor: | |
| 2 men x 10.00/hr. x 16 hr x *2.35 = | $ 752 |
| Equipment Rent | |
| Pickup, 2 days @ 29.00/day = | 58 |
| Test Equipment (lump sum) = | 200 |
| Total | $1,010 |

*Multiplier used by Foundation Testing, Inc.

---

Total estimate, Mobilization & Demobilization = 9,602.00

2. Drilling, rotary (assume 35 feet of hole per day)

Raymond International

Labor, per day

Drill Crew, 1 day @ 654.24 = $ 654.24

Equipment Rent

Barge 1 day @ 66.00 = 66.00
Drill 1 day @ 74.00 = 74.00
Boat 1 day @ 30.00 = 30.00
Pickup 1 day @ 29.00 = 29.00

Drill Materials

2.50/ft. is used by the OSHD Foundation drill crew as a flat rate cost for consumable drill materials (drill bits, casing, drill rod, core bits, and other supplies).

35 ft.day @ 2.50/ft. = 87.50

Total cost per day for drilling 940.74

Assuming 35 feet of hole drilled per day,

$$\frac{\$940.74}{35\text{ ft.}} = \quad 26.88/\text{ft}$$

CH$_2$M Hill

Inspection, Supervision

Base Estimate on one week

E-2 inspector 5 days @ 179/day = $895
E-4 supervisor 2 days @ 227/day = 454
E-7 supervisor 1 day @ 321/day = 321

2. Drilling, rotary (cont.)

**Equipment Rent**

| | |
|---|---|
| Car, 5 days + 2 days = 7 days @ 29.00/day = | $ 203 |
| Misc. Expense, 5 days @ 10.00/day = | 50 |
| Total expense per week = | $ 1,923/week = |
| | $ 384.60/day |

Cost per ft. of hole

$\frac{384.60/\text{day}}{35\ \text{ft/day}} =$ 10.99/ft

Drilling, Total Cost/ft 37.87/ft.

3. Drilling, core

Basic cost of drilling is the same as Item 2 = $37.87/ft.

Additional Cost

| | |
|---|---|
| Core boxes, 2/day @ 15.00 = | $30.00 |
| Wax, supplies lump sum | 10.00 |
| | 40.00/day |

Cost per foot of hole

| | |
|---|---|
| $\frac{40.00/\text{day}}{35\ \text{ft/day}}$ = | 1.14/ft |
| Drilling, Core, Total Cost per foot = | 39.01/ft. |

4. Split Tube Sampling

Labor, per sample

| | |
|---|---|
| Drill crew, 1/6 hr @ 81.78/hr = | $ 13.63 |
| Inspector, E-2, 1/6 hr @ 22.38/hr = | 3.73 |
| Total per Sample | 17.36 |

5. Undisturbed Sampling

Labor, per sample

| | |
|---|---|
| Drill crew, 1/4 hr @ 81.78/hr = | 20.45 |
| Inspector, E-2, 1/4 hr @ 22.38/hr = | 5.60 |
| | 26.05 |

Material

| | |
|---|---|
| Shelby Tube (Longyear catalog price) 9.00 each; reusable 50% = | 4.50 |
| | $ 30.55 |

## 6. Insitu Modulus of Deformation Testing

Assume 2 tests per day.

| | |
|---|---|
| **Raymond International** | |
| **Labor** | |
| Drill crew, standby, 1/2 day @ 654.24 = | $327.12 |
| **Equipment Rent:** | |
| Barge, 1/2 day @ 66/day | 33.00 |
| Boat, 1/2 day @ 30/day | 15.00 |
| Pickup, 1/2 day @ 29/day | 14.50 |
| Drill, 1/2 day @ 74/day | 37.00 |
| Total | $426.62 |
| **Foundation Science Inc.** | |
| **Labor:** Assume similar rates as CH$_2$M Hill | |
| E-4, 1/2 day @ 80/day x *2.35 = | 94.00 |
| E-2, 1/2 day @ 63/day x *2.35 = | 74.03 |
| *2.35 multiplier reported for Foundation Science, Inc. | |
| **Equipment Rent** | |
| Pickup, 1/2 day @ 29/day = | 14.50 |
| Misc. Expense<br>Per test, lump sum = | 20.00 |
| Total | $202.53 |
| **CH$_2$M Hill** | |
| **Labor** | |
| E-4, 1/2 day @ 227/day | 113.50 |
| **Equipment Rent** | |
| Pickup, 1/2 day @ 29/day | 14.50 |
| | $128.00 |
| Total per test | $757.15 |

## 7. Laboratory Testing

| | 1. OSHD Lab. Charge | 2. Multiplier | | Total per Test |
|---|---|---|---|---|
| Modulus of Deformation | 35.00 | 2 | | 70.00 |
| Consolidation Test | 75.00 | 2 | | 150.00 |
| Index Properties: | | | | |
| Atterberg Limits | 12.00 | 2 | 24.00 | |
| Grain Size Analysis | 20.00 | 2 | 40.00 | 64.00 |

1. Standard charges by OSHD Laboratory
2. Assumed factor for review, supervision, sample delivery, materials, et cetera, by Consultant.

## 8. Analysis of Undisturbed Samples

$CH_2M$

Labor

| | |
|---|---|
| E-2 - Assemble and review test data, make preliminary computations, draw graphs<br>10 days @ 179/day = | $ 1,790 |
| E-4 - Evaluation of preconsolidation pressures, stress distribution under foundation load, analysis of settlement and effect<br>5 days @ 227/day = | 1,135 |
| E-7 - Develop consolidation parameters, review computations, procedure, and conclusions obtained from testing:<br>3 days @ 321/day = | 963 |
| Total for Analysis of Undisturbed Samples = | $ 3,888 |

## 9. Analysis of Insitu Modulus of Deformation Tests

### Foundation Science, Inc.

**Labor**

| | |
|---|---|
| E-4 - Review and analysis of test results<br>1 day @ 227/day = | $ 227 |
| E-2 - Preparation of data, reports, etc.<br>2 days @ 179/day = | 358 |
| E-7 - Review all data, general supervision<br>1 day @ 321/day = | 321 |
| Total | $ 906 |

### CH2M Hill

**Labor**

| | |
|---|---|
| E-2 - Collect data, preliminary computations, drafting<br>3 days @ 179/day | 537 |
| E-4 - Comparison of data with results of other testing, final computations<br>3 days @ 227/day | 681 |
| E-7 - Review all data, gen. supervision<br>1 day @ 321/day | 321 |
| Total | $1,539 |

| | |
|---|---|
| Total, Analysis of Insitu Modulus of Deformation Test = | $2,445 |

## 10. Foundation Report

**CH$_2$M Hill**

**Labor:**

| | |
|---|---|
| E-2 - Assemble all data, prepare rough draft, drafting for graphs, charts, prepare printing<br>5 days @ 179/day = | $ 895 |
| E-4 - Prepare final draft of report, final check of data<br>3 days @ 227/day = | 681 |
| E-7 - Review all of above, gen. supervision<br>1 day @ 321/day = | 321 |
| | $1,897 |
| Materials and Printing<br>Lump Sum | 100 |
| Total, Foundation Report | $1,997 |

## SCHEDULE OF MINIMUM HOURLY WAGE RATES

The minimum hourly wage rates applicable to the work to be done under this contract as called for in subsection 107.04 of the Standard Specifications and as prescribed under the provisions of ORS 279.348 through 279.356 and laws amendatory thereof are as hereinafter set forth.

The contractor's or subcontractor's attention is directed to Chapter 369, Oregon Laws 1969, which has made certain amendments to the above-listed statutes. One of these amendments has changed the definition of the term "prevailing rate of wage" to mean the rate of hourly wage and overtime including fringe benefits as determined by the Commissioner of the Bureau of Labor in cooperation with the Secretary of Labor of the United States.

A contractor or subcontractor performing work under this contract may discharge his obligations for the payment of the basic hourly rates and the fringe benefits, where both are contained in this schedule of minimum hourly wage rates and which are applicable to his workmen, in the following ways:

(1) By paying not less than the basic hourly rate to the workmen and by making the contributions for the fringe benefits.

(2) By paying in cash directly to the workmen the basic hourly rate and by making an additional cash payment to the workmen equal to and in lieu of the required fringe benefits contributions.

(3) The contractor or subcontractor may discharge his minimum wage obligations for the payment of basic hourly rates and fringe benefits by a combination of the methods described in (1) and (2) above.

July, 1975

## IRON WORKERS

$10.15

Structural Ironworkers
Ornamental Ironworkers
Machinery Mover, Machinery Erector
Riggers
Signal Men
Welders and Burners
Fence Erectors
Sheeters
Reinforcing Ironworkers
Foreman - 3 men or less - not less than 30¢/hr. over Journeyman rate
4 men or more - not less than 55¢/hr. over Journeyman rate
Apprentice - 1st year 80% of Journeyman Ironworker rate
2nd year 90% of Journeyman Ironworker rate
3rd year 95% of Journeyman Ironworker rate

## IRONWORKERS' FRINGE BENEFITS

| H & W | Pension | Apprenticeship |
|---|---|---|
| $.58 | 1.00 | .05 |

## HOISTING AND PORTABLE ENGINEERS' WAGE RATES

| Group # | |
|---|---|
| 1 | $8.30 |
| 2 | 8.44 |
| 3 | 8.54 |
| 4 | 8.70 |
| 5 | 8.72 |
| 6 | 8.80 |
| 7 | 8.86 |
| 8 | 8.96 |
| 9 | 9.02 |
| 10 | 9.08 |
| 11 | 9.10 |
| 12 | 9.16 |
| 13 | 9.24 |
| 14 | 9.40 |
| 15 | 9.56 |
| 16 | 9.74 |
| 17 | 9.88 |
| 18 | 10.06 |
| 19 | 10.20 |

**Foreman** - 75¢ per hour above highest paid classification under his supervision

## HOISTING AND PORTABLE ENGINEERS' GROUP CLASSIFICATION - contd.

| Group | Crane - contd. |
|---|---|
| 16 | Cableway Operator, twenty-five (25) ton and over |
| 11 | Crane Operator, twenty-five (25) ton and under (Assistant to Engineer required) (except for rough terrain) |
| 13 | Crane Operator, over twenty-five (25) ton and including forty (40) ton. (Assistant to Engineer required) |
| 16 | Crane Operator, over forty (40) ton and including one-hundred (100) ton (Assistant to Engineer required) |
| 17 | Crane Operator, over one-hundred (100) ton and including two-hundred (200) ton (Assistant to Engineer required) |
| 18 | Crane Operator, over two-hundred (200) ton (Assistant to Engineer required) |
| 13 | Tower Crane Operator |
| 16 | Whirley Operator, eighty (80) ton and under (Assistant to Engineer required) |
| 17 | Whirley Operator, over eighty (80) ton and including one-hundred fifty (150) ton (Assistant to Engineer required) |
| 18 | Whirley Operator, one-hundred fifty (150) ton and over (Assistant to Engineer required) |
| 19 | Helicopter Operators, when used in erecting work |
|  | Crusher |
| 1 | Crusher Oiler |
| 1 | Crusher Feederman |
| 8 | Generator Operator |
| 8 | Diesel - Electric Engineer |
| 9 | Grizzley Operator |
| 9 | Crusher Plant Operator (Assistant to Engineer and Feederman required) |
|  | Drilling |
| 2 | Drill Helper |
| 2 | Auger Oiler |
| 7 | Churn Drill and Earth Boring Machine Operator |
| 9 | Drill Doctor |
| 9 | Boring Machine Operator (Assistant to Engineer required) |
| 10 | Driller - Percussion, Diamond, Core, Cable, Rotary and similar types |
|  | Floating Equipment |
| 1 | Deckhand |
| 4 | Fireman |
| 2 | Boatman |
| 8 | Diesel - Electric Engineer |
| 13 | Piledriver Operator (not crane type) (Deckhand required) |

(Received from CH2M Hill July 23, 1975)

### DEVELOPMENT OF PER DIEM COSTS FROM DIRECT SALARY AND 1974 ACTUAL OVERHEAD COSTS

| Grade | Daily Salary | Salary Overhead[1] | General and Administrative Overhead[2] | Fee[3] | Total | Used on Proposal |
|---|---|---|---|---|---|---|
| E-7 | $113.00 | $35.77 | $130.27 | $44.64 | $323.68 | $324 |
| E-4 | 80.00 | 25.33 | 92.22 | 31.61 | 229.16 | 228 |
| E-2 | 63.00 | 19.95 | 72.63 | 24.89 | 180.47 | 180 |
| EG-3 | 57.00 | 18.04 | 65.71 | 22.52 | 163.27 | 164 |

NOTES:

[1] 31.66 percent of Direct Salary

[2] 115.28 percent of Direct Salary

[3] 16 percent of Salary plus Salary Overhead plus General and Administrative Overhead

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BRIDGE SECTION

**OREGON STATE HIGHWAY DIVISION** **FILE: Br. 9555**

INTER-OFFICE CORRESPONDENCE

May 9, 1975

Salem, Oregon

Philip M. Oakley

**FROM:** Philip M. Oakley
Supervising Design Engineer

**TO:** Memorandum to the Files

**SUBJECT:**

Columbia River (I-205) Bridge
Additional Test Borings

In a letter dated September 5, 1974, Sverdrup & Parcel suggested that additional borings be made at piers 12 and 13 of the Columbia River (I-205) Bridge. In a subsequent letter dated February 10, 1975 they detailed their reasons for this request. After study of this submittal it was agreed by the FHWA and OSHD that additional foundation information would be required to determine the estimated settlement of these piers under load.

On Wednesday, May 7, at 10 a.m., a meeting was convened at the FHWA Regional Office in Portland, to determine the extent of the required foundation exploration. A list of those in attendance is attached.

The alternates listed in a FHWA memo dated April 15, 1975 were discussed. Alternative 2, drilling on dry land and interpolating was discarded because the slight savings in cost were not worth the doubt over the interpolated results. Mr. Worth was asked if it would be possible to make estimated settlement calculations during construction from measurements taken during incremental loading of the pier. He answered that this would not be practical in part because of the difficulty in obtaining accurate, meaningful measurements and mainly because of the anticipated time lag of the settlement.

After a short discussion it was agreed that it would be necessary to drill two holes at each of piers 12 and 13 and to provide for the drilling of one additional hole at pier 11 and another at pier 14. The latter two holes would be drilled only if it was found necessary to obtain more data after studying samples from the four initial holes.

Walt Hart instructed Sverdrup & Parcel to prepare the necessary proposal.

Other Items

Walt Hart asked Jack Allen to investigate fatigue in Grade 60 rebar, particularly that incorporated in the deck.

Walt asked Jack Allen to consider dividing the project into separate substructure and superstructure contracts and even the value of dividing the substructure into two contracts.

Meeting adjourned at 11:05 a.m.

PMO/ag

cc E. S. Hunter
Glen Green
Jack Allen
Ed Worth ($CH_2M$ Corvallis)
R. L. Carroll

4555

May 8, 1975

**MEMORANDUM**
**FOR THE RECORD**

**BY:** M. E. Perala

**SUBJECT:** Columbia River Bridge
Meeting with OSHD, FHWA and $CH_2M$-Hill

On May 7, 1975, a meeting was held in Portland, Oregon, at the FHWA regional offices to determine a means of obtaining additional soils information at Piers 12 and 13. A memorandum from the FHWA to OSHD dated April 15, 1975, listed four possible alternatives toward accomplishing this. Those in attendance at the meeting were:

| | |
|---|---|
| Walt Hart | OSHD |
| Phil Oakley | OSHD |
| Herb Schell | FHWA |
| Hank Steinbrugge | FHWA |
| Andy Munoz | FHWA |
| John Garren | FHWA |
| Ed Worth | $CH_2M$-Hill |
| John Ramage | $CH_2M$-Hill |
| Jack Allen | S&P |
| Marvin Perala | S&P |

## Discussion of Alternatives

Ed Worth reviewed the reason for need of additional borings. The mudstone layer in question was first discovered during the preliminary foundation borings near Pier 15 subsequent to completion of borings at Piers 11 through 14 all of which were terminated in the overlying Troutdale formation.

Andy Munoz questioned whether gross or net (less excavated soil weight) loads were used in calculating settlement values. $CH_2M$-Hill used another method in arriving at their values and will consider this in their calculations.

Alternative 2 was eliminated on the basis that it would still only be an interpolation between borings at some distance away and thus not necessarily reflect the actual conditions existing at Piers 12 and 13.

Copy to
Herb Schell
5-12-75
dh

NOTED
P. M. OAKLEY

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Alternative 3 was eliminated as unworkable due to its timing (during construction) and no assurance of substantial cost saving could be forecast.

The above led, logically, to the elimination of Alternative 4, which was a combination of Alternatives 2 and 3, and it was agreed to proceed on the basis of Alternative 1.

The problems of monitoring the actual settlement were discussed. No decision was reached as to what stage of construction this monitoring should be initiated.

Alternative 1 (Drill at the proposed locations at Piers 12 and 13, obtain samples and conduct consolidation tests)

Herb Schell suggested careful planning as to what data is required and making two borings each at Piers 12 and 13 to increase validity of results. He also questioned whether additional borings at Piers 11 and 14 would be of value. $CH_2M$-Hill did not foresee any need for additional borings at Piers 11 and 14 unless something quite unexpected is found with the borings at Piers 12 and 13.

It was decided to:

1. Make two borings each (Size NX core) at Piers 12 and 13;
2. Include one boring each at Piers 11 and 14 in the proposal contingent upon findings of the borings at Piers 12 and 13;
3. Leave exact location of borings to $CH_2M$-Hill;
4. Extend depth of borings to about Elev. -220;

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5. Contract Raymond International to drill the borings;

6. Perform 2 - 3 consolidation tests per boring.

Both Walt Hart and Herb Schell urged S&P to expedite preparation of the proposal in order to complete the borings during the coming summer months.

## Comments on Bridge Details

Wabo-Maurer Expansion Joints - OSHD and FHWA expressed concern over their use. Oregon's past experience with these indicates poor fabrication practices and difficulties in making repairs.

Transflex Joints - OSHD has experienced problems with leakage and resultant discoloring of substructure components.

OSHD had not yet reviewed the main span plans or special provisions.

Walt Hart asked S&P to check fatigue stresses in Grade 60 reinforcing in the roadway slab. He asked S&P to check into convenient means of dividing the construction work into a number of separate contracts.

OSHD is in the process of drafting a formal letter of approval authorizing S&P to proceed with design and plans to Sta. 83+10.

M. E. Perala
M. E. Perala

✓cc: Walter J. Hart

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Form FHWA 121 (Rev. 5-73)

UNITED STATES GOVERNME

*Memorandum*

130

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
222 S.W. Morrison Street
Portland, Oregon 97204

DATE: April 15, 1975

In reply refer to: 10ED.1

SUBJECT: Oregon Project I-205-7(2) - Columbia River Bridge

FROM: Director, Office of Environment and Design

TO: Mr. Glen L. Green
Division Engineer
Salem, Oregon

We have reviewed the foundation settlement analyses for pier 13 of the I-205 Columbia River Bridge submitted with your memorandum dated March 27, 1975, and the following are our comments and recommendations:

1. The consultant has adequately addressed the questions we raised when first approached with the need for further subsurface exploration work in this area.

2. The difference of 3.8 inches in total predicted settlement by the consultants is strictly a function of the assumed preconsolidation characteristics of the mudstone stratum. We do not have the consolidation test data in which to make an interpretation of the preconsolidation pressure. Based on general geology of the area, we agree with the assumption that the mudstone layer has been preconsolidated to pressures much greater than existing overburden pressures and that imposed footing loads do not exceed the preconsolidation pressure. This assumption results in a predicted total settlement of 4.5 inches for pier 13. As you know, any analysis will only be as good as the data that is fed into the analysis.

Available alternatives are as follows:

1. Drill at the proposed locations at piers 12 and 13, obtain samples and conduct consolidation tests. Approximate cost of the four borings is $50,000.

2. Drill on dry land on the Washington side and interpolate between borings, obtain samples and conduct consolidation tests.

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3. For design purposes, go on an assumed total settlement of 4.5 inches for pier 13. Then during the construction phase make the borings, and with the obtained subsurface data either verify the assumption or make new settlement predictions and make the necessary design changes by change order.

4. A combination of 3 and 4.

We recommend that the bridge designers be asked to give a tolerance that they can design for. Based on this information, a decision can then be made on the alternatives listed above. Whatever the decision, we recommend that instrumentation be placed at piers 12 and 13 to monitor the actual settlement.

Richard C. Cowdery

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# OREGON STATE HIGHWAY DIVISION

INTER-OFFICE CORRESPONDENCE

April 9, 1975

Salem, Oregon

FILE: Br. 9555

FROM: John R. Marks John R. Marks
Assistant Foundation Engineer

TO: Mr. Walter J. Hart
Bridge Engineer

SUBJECT:

I-205 Columbia River Bridge
Piers 12 and 13 Settlement Analysis
Sverdrup & Parcel and Associates, Inc.
Request for Additional Borings

## General Background

In Sverdrup & Parcel's letter dated September 5, 1975, they indicated that due to use of a caisson instead of the previously proposed piling at Pier 13 the area over which bridge loads influence the foundation materials is increased. This increase, they fear, is enough to extend the area of influence through the Troutdale formation of dense sand and gravel into the underlying stratum of silty clay. They have therefore recommended that additional borings into this underlying stratum be made, 2-each at Piers 12 and 13, in order that reliable settlement predictions can be made.

A meeting was held October 7, 1974 and attended by various representatives of the Oregon State Highway Division, Washington Department of Highways, Sverdrup & Parcel and Federal Highway Administration.

At this meeting Jack Allen, representing Sverdrup & Parcel, stated that (Quote from FHWA letter dated October 11, 1975 from H. A. Schell to G. L. Green) "in his review of the foundation exploration and pile load test information, he noted that at piers 12 and 13 the structure will rest directly on an undetermined depth of Troutdale gravels. Drilling information acquired at piers 12 and 13 does not go deep enough to show the lower layer of the Troutdale formation which consists of clay, silt and sand. The upper layers, consisting of coarse gravel and sand cemented in various degrees, appeared to provide adequate bearing for piling from pier 13 south. However, if the depth of this cemented sand and gravel in the main river channel is not adequate, load transfer into a compressible material will occur, which could cause some settlement. For these reasons, he has requested additional borings to evaluate the settlement and will utilize this information in the design". Sverdrup & Parcel was asked to make a written request for this additional work.

On October 22, 1974 a memorandum was sent to Mr. F. B. Klaboe, Administrator and State Highway Engineer, from G. L. Green, Division Engineer, FHWA, stating that before a commitment of any drilling is made additional information is felt necessary. This information is as follows:

1. What are the approximate pier loads and foundation distribution expected?
2. How much settlement do you anticipate with approximately 60 feet of Troutdale gravel below the caisson (projected Troutdale gravel strata depth from foundation report submitted March 10, 1971)?
3. What are the foundation consultant's comments on this specific item?
4. What effect will this design alteration have on the footing size?

Sverdrup & Parcel's answers to these questions came with their request for additional borings dated February 10, 1975 and are as follows:

1. For pier 12 the total load of combined roadway is 107,000 kips at El. -68.5. For pier 13 the combined roadways weigh 130,000 kips at El. -84.
2. Pier 13 is expected to settle 1/2 inch due to dense conglomerate and 7.8 inches due to silty clay.
3. $CH_2M$ based their settlement computations on a different criteria in regard to the consolidation of the silt and clay and arrived at 1/2 inch in the conglomerate and 4 inches in the silt and clay.
4. Sverdrup & Parcel believes that additional borings will not affect footing size.

Evaluation

First of all it should be understood that all the settlement calculations were made using consolidation test data that was obtained from a test hole over 1,000 feet away from proposed pier 13 and that only one consolidation test was performed.

The calculations made by Sverdrup & Parcel were checked and found to be reasonably accurate except for the upper and lower limits used for the compressible zone. Sverdrup & Parcel assumed a 40-foot thick Troutdale formation and not a 60-foot layer as Question No. 2 stated in FHWA letter dated October 22, 1974. This extra 20 feet of Troutdale formation could result in 2 3/4 inches less settlement. This could be offset, however, by settlement below the limits of their calculations. The deepest stratum, identified VIII by Sverdrup & Parcel, was calculated to have 3.4 kips per square foot of pressure due to the footing and a corresponding 0.8 inches of settlement. This indicates that the depth of influence was not reached.

In regard to the calculations made by CH$_2$M it should be noted that they seem to ignore their own consolidation test conducted on an undisturbed sample taken from test hole B-28 at Elevation -162 msl which, by their interpretation, yielded a preconsolidation pressure of 12.5 KSF. They assumed instead that the preconsolidation pressure in the silty clay stratum is greater than the existing overburden pressure plus the pressure influence of the superimposed caisson at pier 13.

At this point it is unimportant who has made the more accurate settlement assessment, Sverdrup & Parcel or CH$_2$M, but only that strong evidence exists to warrant the additional testing that is being requested.

JM/ag

Bridge 9555

March 24, 1975

Mr. Glen Green
Division Engineer
Federal Highway Administration
P. O. Box 300
Salem, OR 97308

Dear Mr. Green:

Additional Test Borings
Columbia River (I-205) Bridge
Bridge 9555

Enclosed is a copy of a request from Sverdrup & Parcel for additional borings at piers 12 and 13 of the I-205 Bridge. The implications of an error in the prediction of settlement at these two piers is such that I would recommend proceeding with the additional borings.

I would appreciate your having an experienced soils engineer from the Federal Highway Administration review the attached settlement calculations. His recommendations should be received before we reply to Sverdrup & Parcel.

There is approximately $43,000 for supplemental foundation investigation under the original preliminary design agreement. These funds were not used in the initial foundation investigation and could be applied against the cost of these additional borings.

Very truly yours,

Walter J. Hart
Bridge Engineer

WJH:dh
Enclosure

cc E. S. Hunter
R. N. Bothman
C. S. Gloyd
R. L. Carroll

NOTED
W. J. HART

SVERDRUP & PARCEL AND ASSOCIATES, Inc.
*Consulting Engineers*
505 - 106TH AVENUE N. E.
P. O. BOX 369
BELLEVUE, WASHINGTON 98004

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BRIDGE DIVISION

February 10, 1975

Oregon State Highway Department
Highway Building
Salem, Oregon 97310

Attention: Mr. Walter J. Hart
Bridge Engineer

Gentlemen:

Subject: I-205 Columbia River Bridge
Bridge 9555
Recommended Additional Borings

Our letter dated September 5, 1974, recommended that additional exploratory borings be made at Piers 12 and 13. Additional justification for that recommendation was requested at our October 7, 1974, meeting in Portland and the FHwA has also requested specific additional information in their letter dated October 22, 1974.

Enclosed are copies of a brief synopsis of the events occurring in the design of the main spans including sketches illustrating changes in pier configuration and locations of the four recommended borings. Our computations for estimated settlement and a copy of a letter from CH2M are also enclosed.

In answer to the four questions of the FHwA:

1) The total pier load at the bottom of seal course or caisson has been computed from final designs and represents the maximum vertical load with the water surface elevation at 2.5. Full hydrostatic uplift is taken into account. For Pier 12 the total load of combined roadways is 107,000 kips at El. -68.5. For Pier 13 the combined roadways weigh 130,000 kips at El. -84.

2) The amount of settlement, particularly at Pier 13, depends on the assumptions that are made in regard to the consolidation of the silty clay underlining the dense conglomerate. The vertical settlement is computed in two parts: that amount attributed to the dense conglomerate and that attributed to the silt and clay. We compute a settlement of ½" in the conglomerate and 7.8" in the silty clay.

3) Our subconsultant has based the settlement computations on a different criteria in regard to the consolidation of the silt and clay and believes that of the two parts, ½" would be in the conglomerate and 4" in the silt and clay.

4) We do not believe that additional borings will change our opinions as to the proper design bearing pressures to be used on the piers and, therefore, they will have no effect on the size of footing. However, we wish to be able to compute the anticipated total vertical settlement in order that the structure can be built to its final and proper grade.

Please advise if additional information is required.

Very truly yours,

SVERDRUP & PARCEL AND ASSOCIATES, Inc.

Jack Allen

R. Jack Allen, P.E.
Project Engineer

Enclosures

cc: Robert N. Bothman
Edward G. Worth

ENCLOSURE TO
LETTER DATED
FEB 10 1975
FROM
SVERDRUP & PARCEL
AND ASSOCIATES INC

## I-205 COLUMBIA RIVER BRIDGE

## REQUEST FOR ADDITIONAL BORINGS

In order to have a more appreciative understanding of the recommendation for securing additional subsurface information at Piers 12 and 13 of the I-205 Columbia River Bridge, a review of the developments in preliminary designs, preliminary borings, test pile programs, changes in design concepts and final designs have to be taken under consideration. The following is a brief synopsis of those developments.

The preparation of a design report for this structure was initiated in October of 1970 with preliminary borings commencing later that month. Boring locations were selected with regard to a staggered pier ~~arrangement as shown~~ on a U.S. Coast Guard permit drawing. The scope of work for the subsurface investigation called for the borings to be carried to a depth below proposed footing elevations equal to at least twice the width of the footing and to greater depths as required for pile penetration.

With but one exception, the river borings were started at the north side of the main channel, which is presently considered to be the location of Pier 12, and the work progressed to the south. As can be seen on Figure 3 of the "Preliminary Foundation Investigation" the very dense conglomerate of the Troutdale formation occupied the complete depth of boring for Pier 12 for 80 ft ±. At the south side of the channel, Pier 13, about 60 ft ± of overburden to the Troutdale formation in the form of loose to hard-packed river sands were found.

While the preliminary borings proceeded to the south and the boring logs were funneled to the design sections, it appeared that a foundation solution which utilized pile footings would be logical for all river piers from the south channel pier to the Oregon shore. Concepts for the north channel Pier were considered to be those for a spread footing although piling had not been ruled out.

The borings for the presently numbered Piers 12, 13 and 14 were completed in October and November and all were taken to a depth which met the scope of work. However, in late November and early December in the work which was proceeding concurrently with the river borings on Government Island, the borings were advanced sufficiently to break through the Troutdale formation into a layer of silt and clay. It was then considered necessary to determine the depth of the Troutdale formation in any remaining river borings. Three borings in the river were advanced into the layer of silt and clay in middle to late December.

By this time preliminary designs for a structural steel superstructure and a prestressed concrete alternate had progressed far enough to determine the adequacy of the subsurface information obtained to that date. The heaviest imposed loadings were of course applied by the concrete structure.

For Pier 13, separate pile supported footings and columns staggered between structures in the direction of stream flow were contemplated. A pier load of 50,000 kips was computed and used to determine settlement and allowable bearing for these substructure units.

In April of 1971 the preliminary report was submitted and among other features recommended separate foundations between roadways. The columns for the southbound roadway were thirty feet advanced of those for the northbound roadway in order to skew the foundations in the direction of stream flow. Columns were envisioned to be rectangular hollow shafts and were encompassed by a floating fender system which added little or no vertical load to the foundation. Pier 12 was to be spread footings in the Troutdale formation and Pier 13 was formulated for pile support. (See attachment.) Cofferdams and seal courses or bell piers were to be used for construction.

Under these concepts the total vertical load for each pier at the bottom of footing less the hydrostatic uplift, with the river elevation at 2.50, was considered to be about 50,000 kips. Allowable bearing pressures on spread footings at Pier 12 and on piles at Pier 13 were determined and the influence on vertical settlement of any subsurface strata to the Troutdale formation was not considered a problem.

From the period of about September of 1971 to the present a number of concepts have been blended into the preliminary designs which it is felt change the conditions for these Piers, particularly at Pier 13. The rectangular hollow pier shafts were changed to circular hollow shafts with an enlarged base, the bases of the pier shafts were aligned with the stream flow and the idea of a floating fender was discarded in favor of a web wall between the columns of the two roadways. The dual structures were separated a sufficient distance to accept a pedestrian-bicycle path between parapet rails. In addition, a test pile program fortified the plan of using spread footings at Pier 12 but eliminated from consideration any use of piles for the foundation at Pier 13. Piling at this location, would be short, fifteen to twenty feet long, and it was determined these piles would have little or no pull-out capacity.

With these changes, it became necessary to conceive of a new structural concept. A spread footing in the Troutdale formation at Pier 13 would be too far below river levels to consider cofferdam and seal course construction. The employment of a caisson was then developed. This caisson would be founded on the Troutdale formation with an allowable bearing pressure of seven tons per sq ft plus the weight of the overburden. In addition, it would support a distribution slab, superimposed soil and water, a web wall between columns and the columns from the two roadways. The total vertical load of the superstructure and substructure at the bottom of caisson, less the hydrostatic uplift, is estimated to be 130,000 kips. This represents an increase of 30,000 kips over and above the sum of the previously conceived dual substructure units. In addition, it is felt that the sphere of influence in the dense conglomerate and the substrata of silt and clay is much greater and much more pronounced than for the previously conceived separate pile supported footings.

On this basis, the total vertical settlement of this caisson under full dead load was computed using an assumption that the bottom of the dense conglomerate or top of silt and clay was about sixty feet below the foundation. This was found by projecting an assumed line from those borings which penetrated the strata. Various degrees of consolidation of the silt and clay were also considered which has a direct influence on the final settlement expected. (See attached exhibits.)

A total settlement of from 4½" to 7½" is possible and is expected to take place as follows:

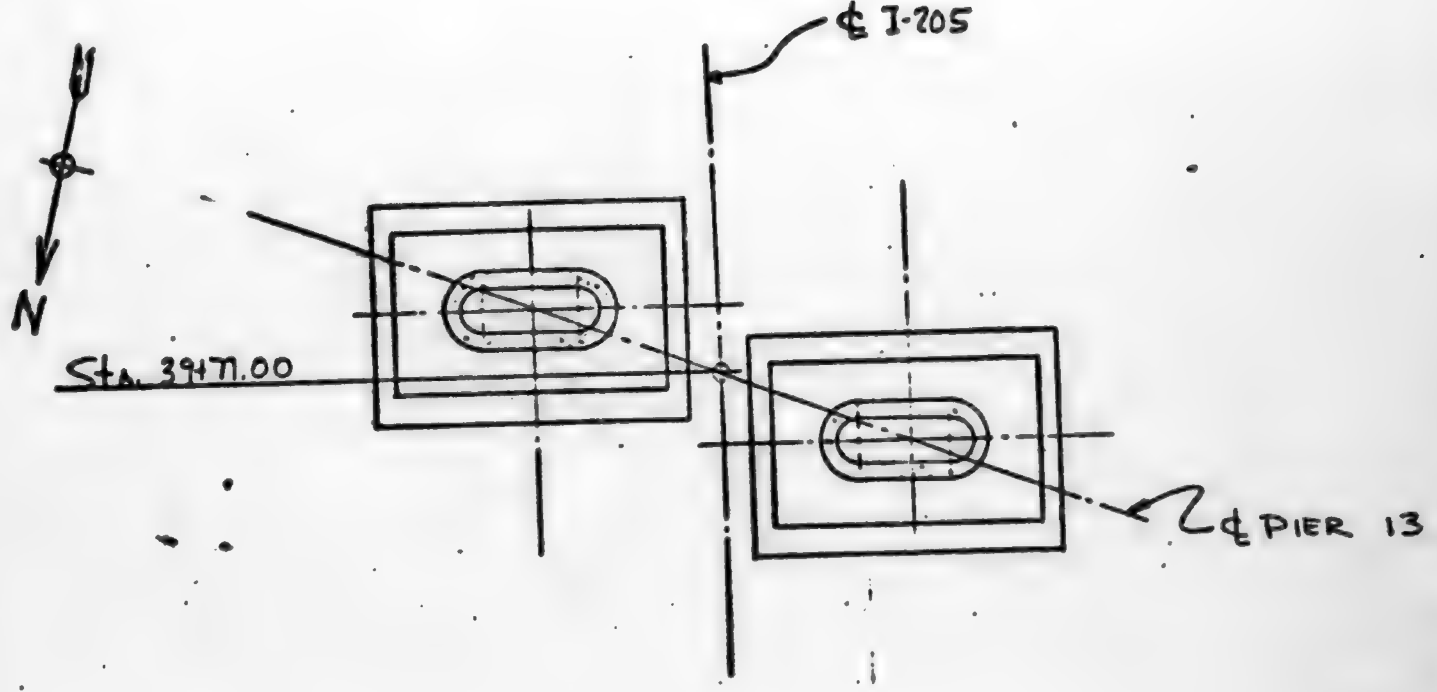
1) ½" of settlement will occur immediately upon application of the load in the dense conglomerate.

2) about twenty-five percent of the total settlement in the silt and clay (1" to 2") will take place prior to effecting closure of the superstructure.

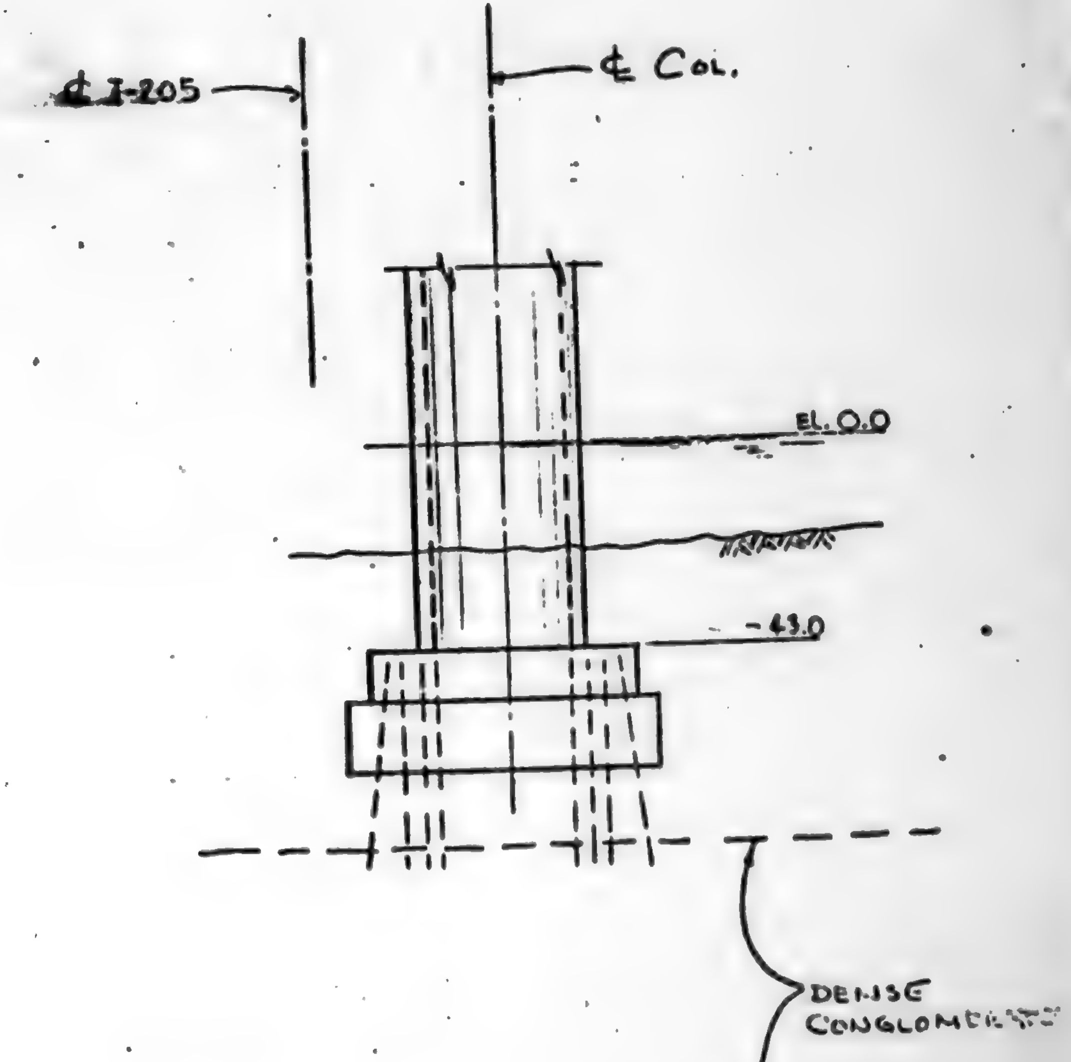
3) The remaining seventy-five percent of total settlement in the silt and clay (2" to 5") will develop over a number of years.

It is generally felt that the presently accepted design allowable pressure of seven tons per square foot plus the weight of overburden is a proper value to use for final design. However, a true and final vertical settlement has to be predicted in order to construct the bridge to a proper line and grade. This can only be done if the extent of the substrata to the dense conglomerate is located and sufficient testing of its consolidation is made.

It is therefore requested that two additional borings be taken at the site of proposed Pier 13 to an extent which will provide the ability to determine the information required. In conjunction with this work it is also strongly advised that two additional borings be taken at the site of proposed Pier 12 in order to determine the relative settlements expected between piers for this span, the longest and heaviest in the structure. (See attachment) These four borings can be secured for an estimated cost of $50,000.

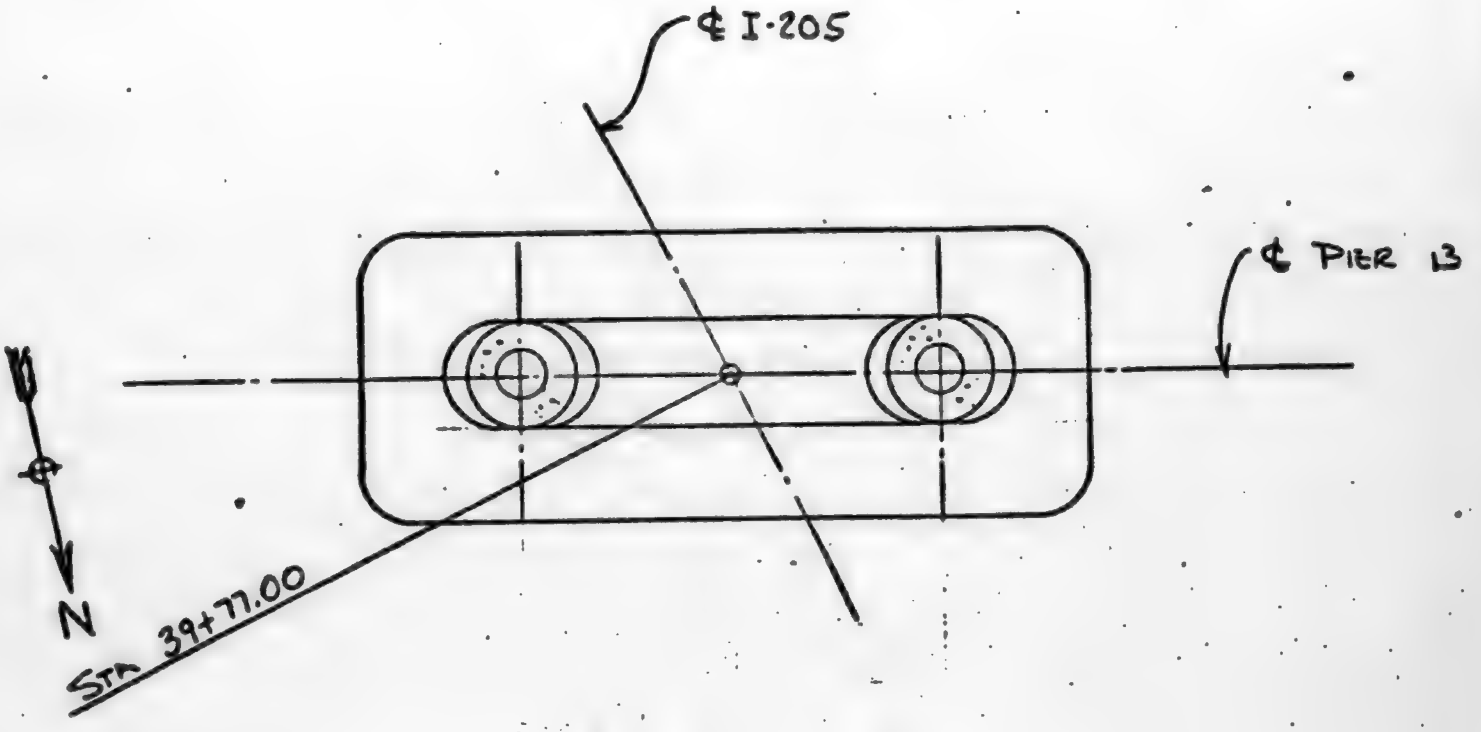


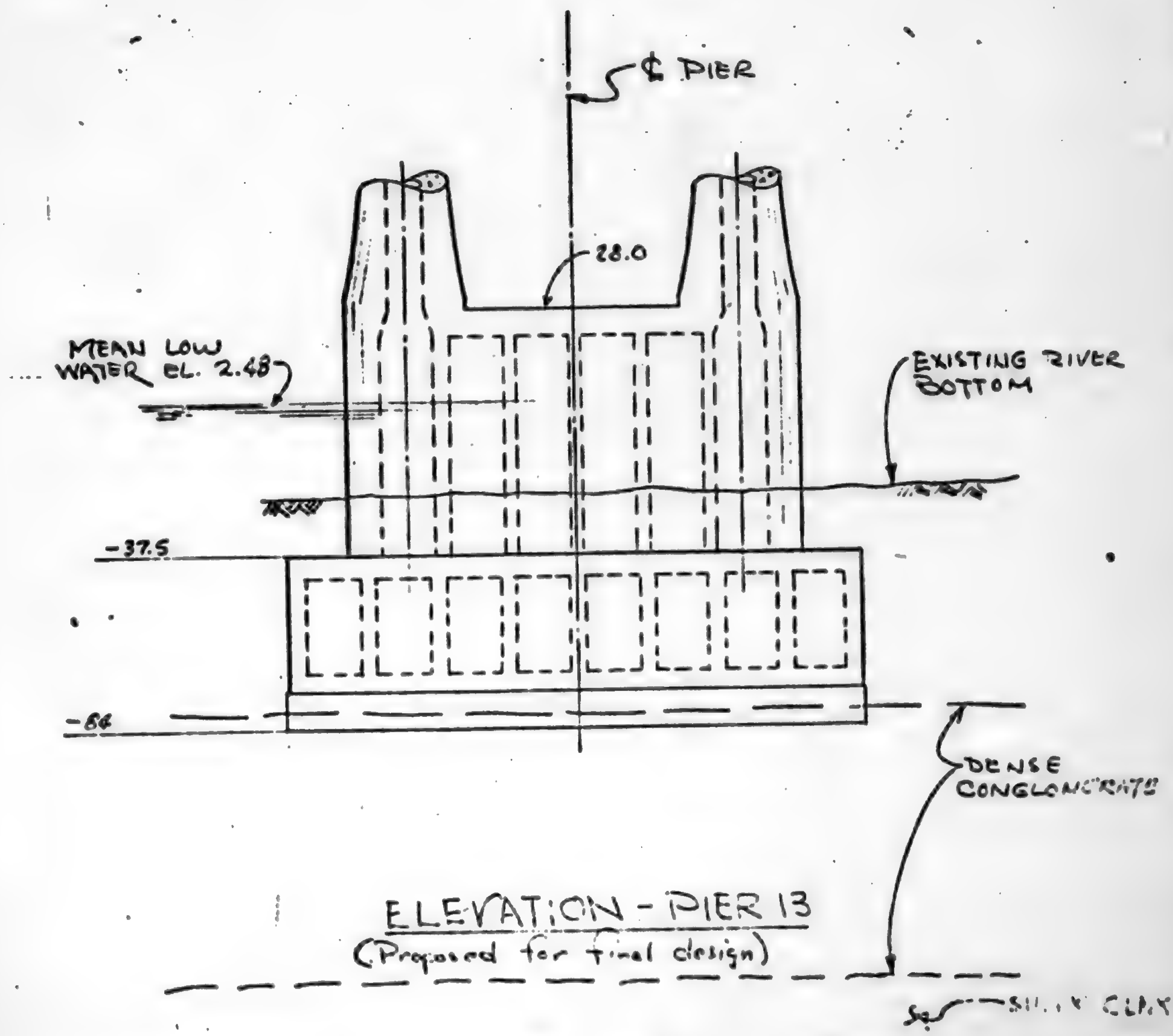
℄ I-205
N
Sta. 39+71.00
℄ PIER 13



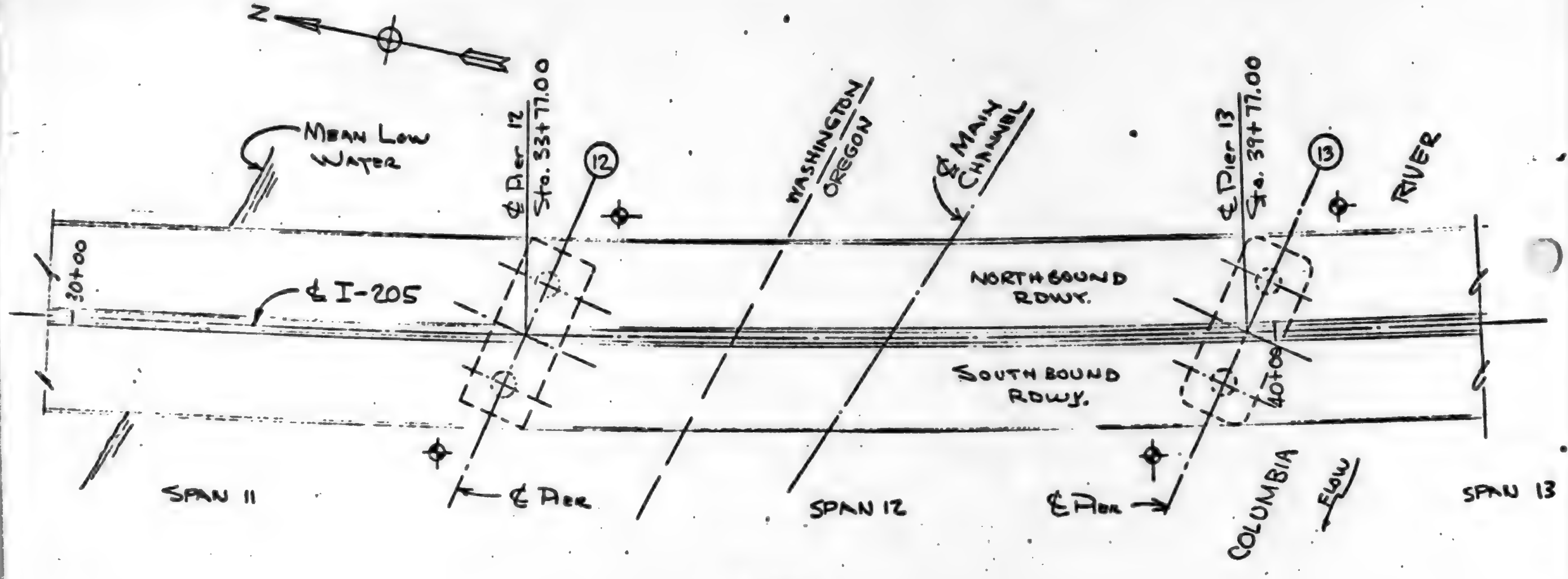
℄ I-205
℄ Col.
EL. 0.0
-43.0
DENSE CONGLOMERATE
-150'
SILTY CLAY

ELEVATION - PIER 13
(Proposed in Preliminary Report)


℄ I-205
℄ PIER 13
N
STA 39+77.00


℄ PIER
28.0
MEAN LOW WATER EL. 2.48
EXISTING RIVER BOTTOM
-37.5
-64
DENSE CONGLOMERATE
SILTY CLAY

ELEVATION - PIER 13
(Proposed for final design)


N
Mean Low Water
℄ Pier 12
Sta. 33+77.00
12
WASHINGTON
OREGON
℄ Main Channel
℄ Pier 13
Sta. 39+77.00
13
RIVER
30+00
℄ I-205
NORTHBOUND RDWY.
SOUTHBOUND RDWY.
40+00
SPAN 11
℄ Pier
SPAN 12
℄ Pier
COLUMBIA
Flow
SPAN 13

PLAN

ADDITIONAL BORINGS REQUIRED AT PIERS 12 & 13

⌖ ← Approx. location of new borings.

COLUMBIA RIVER BRIDGE

By: G.Dm
Date: 1-21-75

K&E KEUFFEL & ESSER CO. MADE IN U.S.A. 46 0703

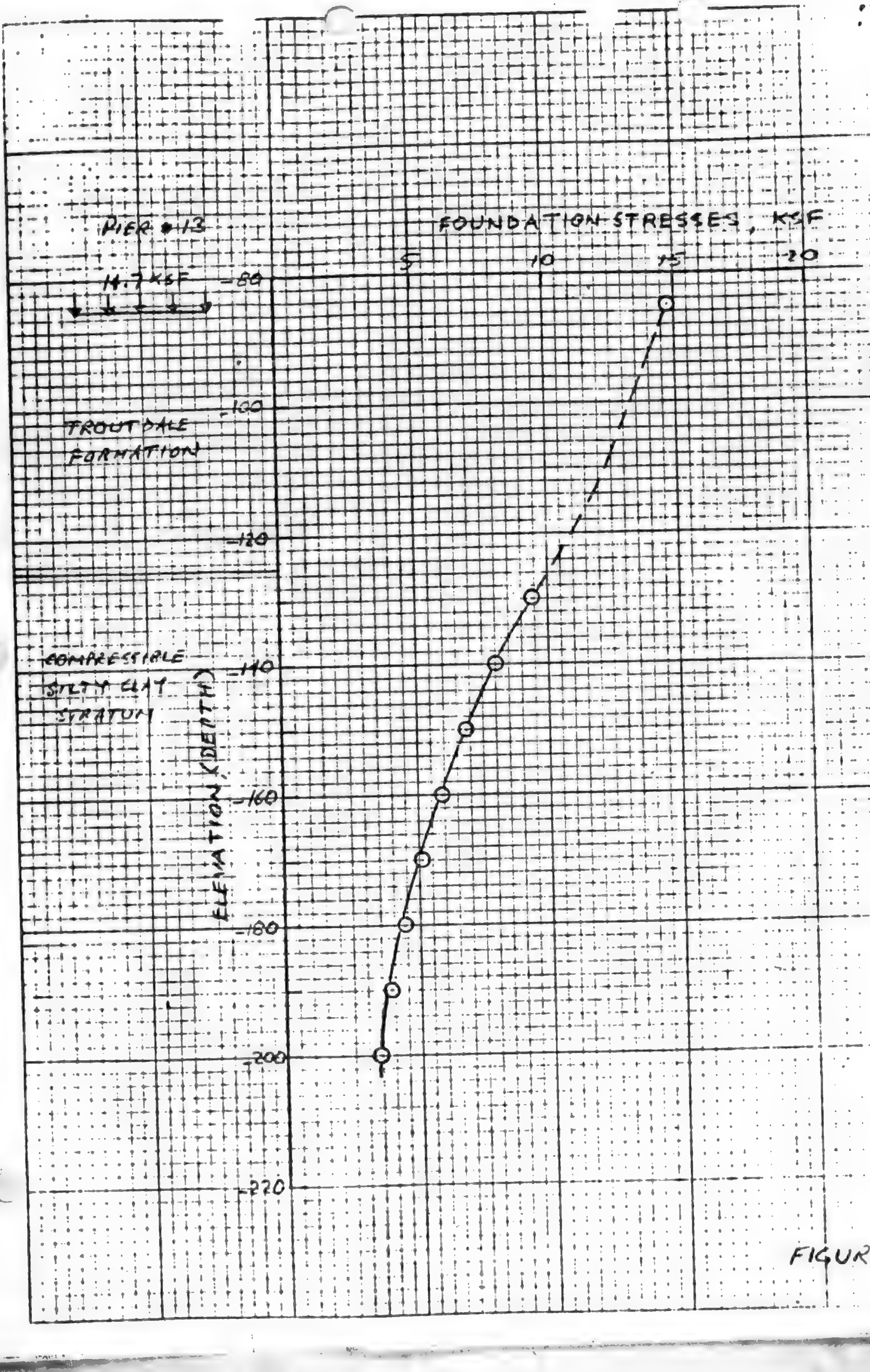
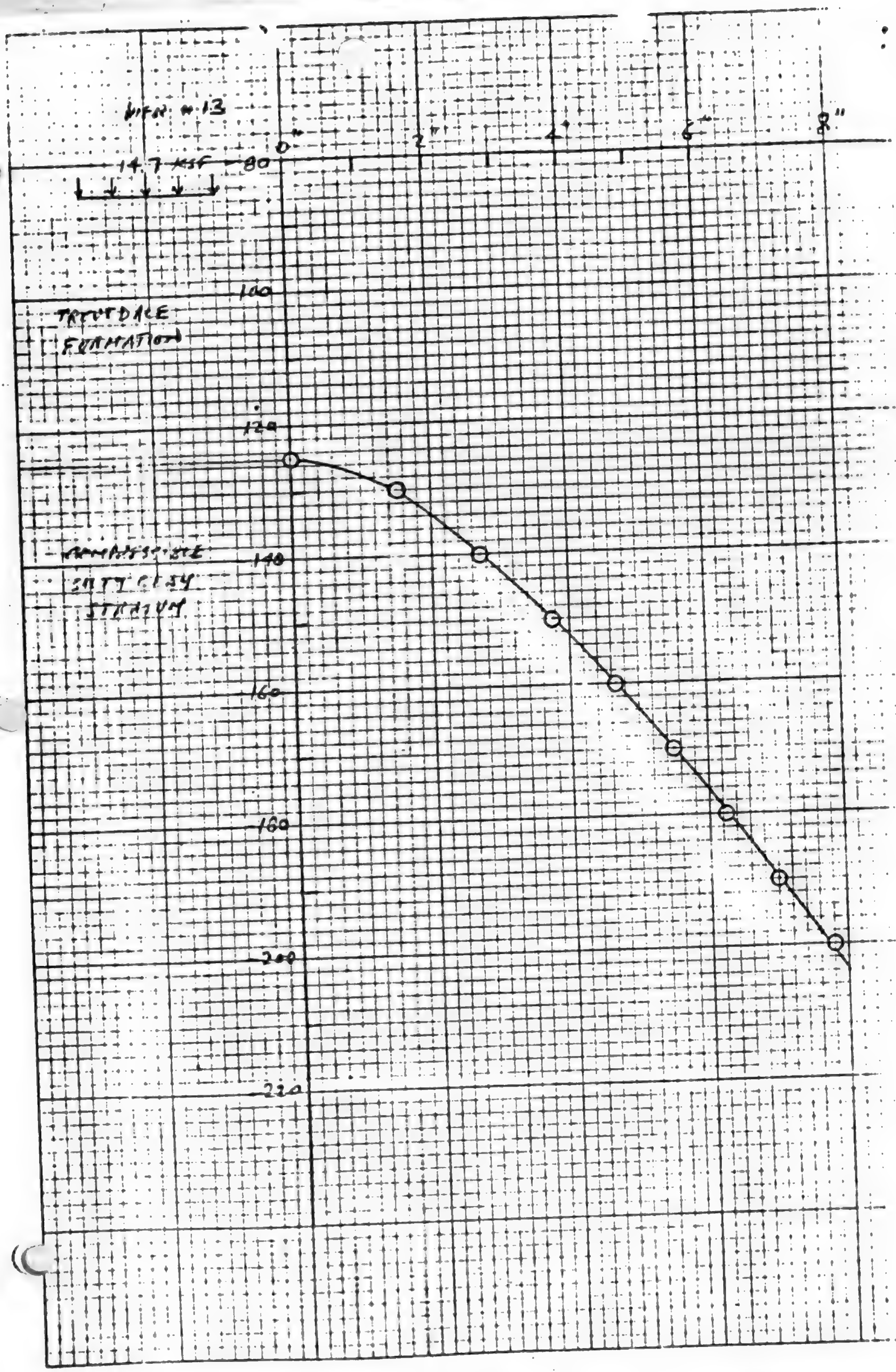


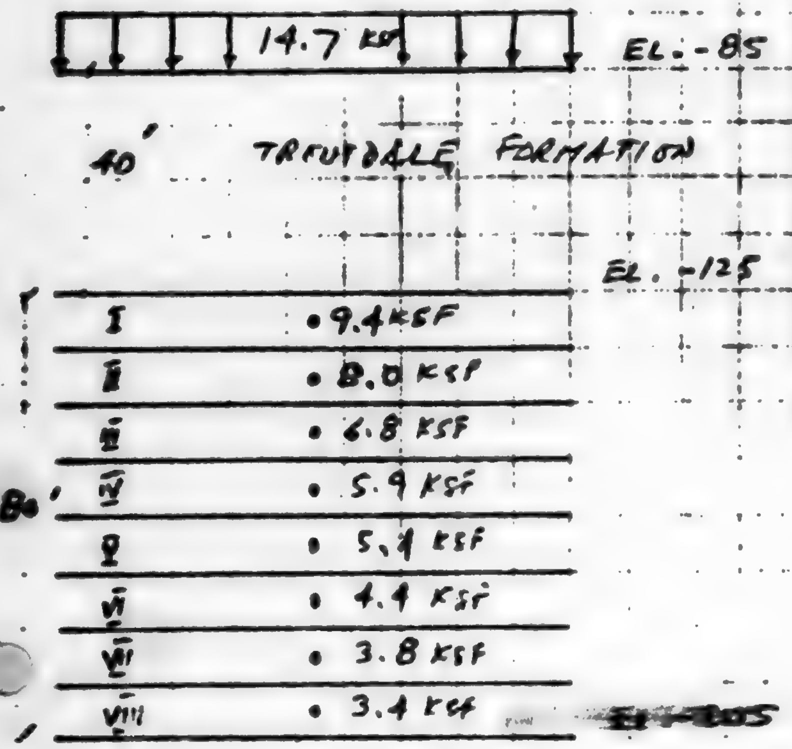
FIGURE 1

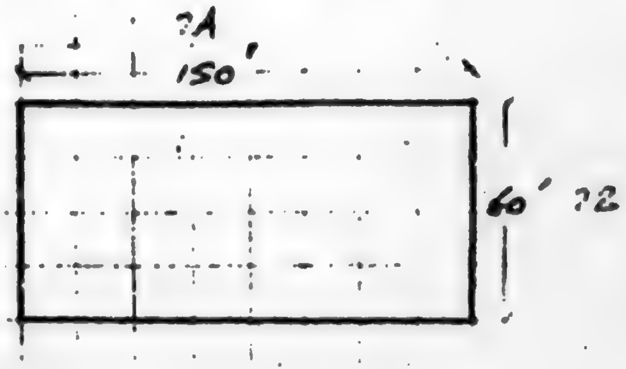
WFN # 13
0
2"
4
6"
8"
14.7 KSF
80
100
TROUTDALE FORMATION
120
140
SILTY CLAY STRATUM
160
160
200
220

**SVERDRUP & PARCEL**

JOB 4415 . COLUMBIA RIVER BRIDGE
SHEET NO. 1 OF 7
DATE 1/17- 75
COMPUTATIONS FOR FOUNDATION LOAD DISTRIBUTION
BY A. H. CHKD C C C

PIER # 13


14.7 ksf
EL. -85
40'
TREUTDALE FORMATION
EL. -125
I • 9.4 KSF
II • 8.0 KSF
III • 6.8 KSF
IV • 5.9 KSF
80'
V • 5.1 KSF
VI • 4.4 KSF
VII • 3.8 KSF
VIII • 3.4 KSF
~~EL -205~~



$A/B = \frac{75}{30} = 2.5$

$x/A = 0, \quad y/B = 0$

$\sigma_0 = 14.7$ KSF

I $z/B = 45/30 = 1.50$

For $A/B = 2.0$ , $i_z = .62445$
For $A/B = 3.0$ , $i_z = .65511$ } $i_z = .63978$

$\sigma_z = 14.7 \times .63978 = 9.4$ KSF

II $z/B = 55/30 = 1.83$

For $A/B = 2.0$ , $i_z = .526$
For $A/B = 3.0$ , $i_z = .566$ } $i_z = .546$

$\sigma_z = 14.7 \times .546 = 8.0$ KSF

**SVERDRUP & PARCEL**

JOB 4415 - COLUMBIA RIVER BRIDGE

SHEET NO. 2 OF 7

DATE 1/17-75

COMPUTATIONS FOR FOUNDATION LOAD DISTRIBUTION

BY A.H. CHKD CCC

**III** $z/B = \frac{65}{30} = 2.17$

$$\left.\begin{array}{l} \text{For } A/B = 2.00, \quad i_z = .44037 \\ \text{For } A/B = 3.00, \quad i_z = .48848 \end{array}\right\} i_z = .464425$$

$$\sigma_z = 14.7 \times .464425 = 6.8 \text{ KSF}$$

**IV** $z/B = \frac{75}{30} = 2.5$

$$\left.\begin{array}{l} \text{For } A/B = 2.00, \quad i_z = .37254 \\ \text{For } A/B = 3.00, \quad i_z = .42523 \end{array}\right\} i_z = .398885$$

$$\sigma_z = 14.7 \times .398885 = 5.9 \text{ KSF}$$

**V** $z/B = \frac{85}{30} = 2.83$

$$\left.\begin{array}{l} \text{For } A/B = 2.00, \quad i_z = .31736 \\ \text{For } A/B = 3.00, \quad i_z = .372174 \end{array}\right\} i_z = .344767$$

$$\sigma_z = 14.7 \times .344767 = 5.1 \text{ KSF}$$

**VI** $z/B = \frac{95}{30} = 3.17$

$$\left.\begin{array}{l} \text{For } A/B = 2.00, \quad i_z = .271 \\ \text{For } A/B = 3.00, \quad i_z = .326 \end{array}\right\} i_z = .2980$$

$$\sigma_z = 14.7 \times .2980 \quad 4.4 \text{ KSF}$$

**SVERDRUP & PARCEL**

JOB 4415 - COLUMBIA RIVER BRIDGE SHEET NO. 3 OF 7
DATE 1-17-75
COMPUTATIONS FOR FOUNDATION (SOIL) DISTRIBUTION BY A.H. CHKD C. C.

VII $z/B = \frac{105}{30} = 3.5$

For $L/B = 2.00$, $i_z = .23405$
For $L/B = 3.00$, $i_z = .28807$ } $i_z = .26106$

$\sigma_z = 14.7 \times .26106 = 3.8$ KSF

VIII $z/B = \frac{115}{30} = 3.83$

For $L/B = 2.00$, $i_z = .203739$
For $L/B = 2.00$, $i_z = .255835$ } $i_z = .229787$

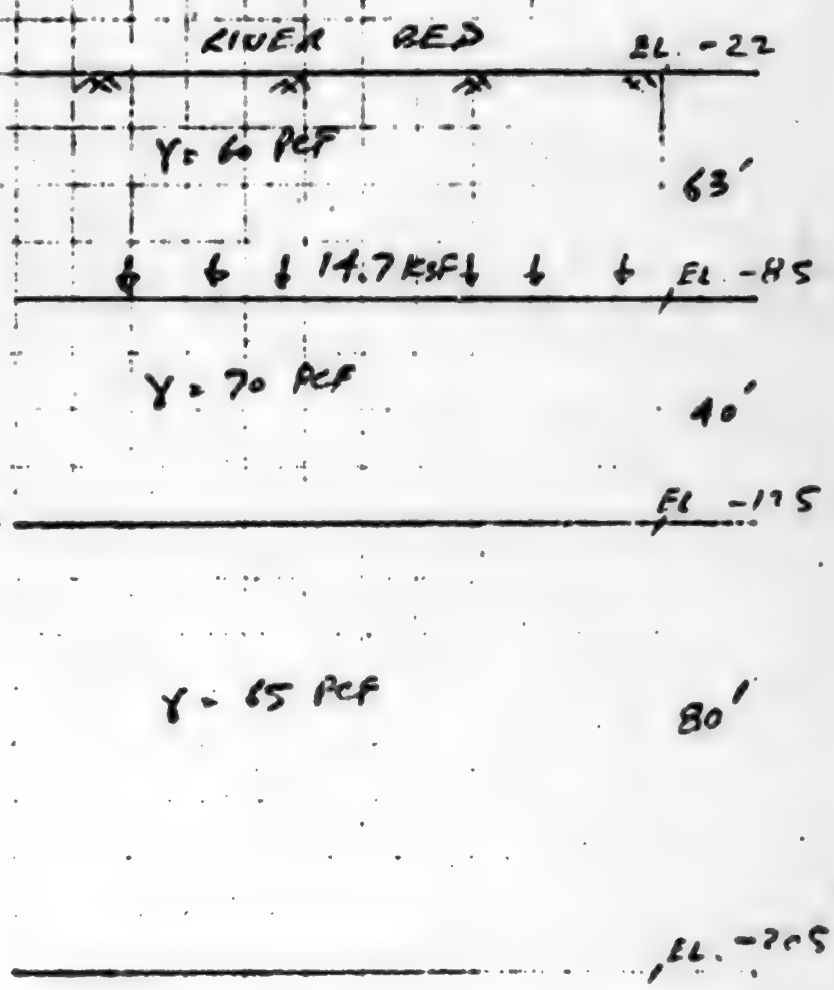
$\sigma_z = 14.7 \times .229787 = 3.4$ KSF

**SVERDRUP & PARCEL**

JOB 4415 - COLUMBIA RIVER BRIDGE
SHEET NO. 4 OF 7
DATE 1/17-75
COMPUTATIONS FOR SETTLEMENT PIER # 13
BY A. H. CHKD C C L

REF: CH₂M REPORT DATED 3/10-71
FIGURE 7

$C_r = .017$
$C_c = .133$
$p_c = 12.5$ KSF
$p_1$ = EFFECTIVE OVERBURDEN PRESSURE
$\Delta p$ = FOOTING PRESSURE
$p_2 = \Delta p + p_1$
$e_0$ = VOID RATIO FOR $p_1$


RIVER BED
EL. -22
γ = 60 PCF
63'
14.7 KSF
EL. -85
γ = 70 PCF
40'
EL -125
γ = 65 PCF
80'
EL. -205

$$\Delta h = h\left(\frac{C_r}{1+e_0}\log\frac{p_c}{p_1} + \frac{C_c}{1+e_0}\log\frac{p_2}{p_c}\right)$$

I $p_1 = 6.905$ KSF
$p_2 = 9.4 + 6.905 = 16.305$ KSF
$e_0 = .6045$

$$\Delta h = 10\left(\frac{.017}{1.6045}\log\frac{12.5}{6.905} + \frac{.133}{1.6045}\log\frac{16.305}{12.5}\right)\times 12$$
$$= 10\times(.00273 + .009566)\times 12$$
$$= \underline{\underline{1.5''}}$$

**SVERDRUP & PARCEL**

JOB 4415 - COLUMBIA RIVER BRIDGE
SHEET NO. 5 OF
DATE 1/17-75
COMPUTATIONS FOR SETTLEMENT PIER #13
BY A.H. CHKD CCL

**II**

$p_1 = 7.555$ KSF
$\Delta p = 8.0$ KSF
$p_2 = 15.555$ KSF
$e_0 = 0.6038$

$$\Delta h = 10\left(\frac{.017}{1.6038}\log\frac{12.5}{7.555} + \frac{.133}{1.6038}\log\frac{15.655}{12.5}\right)\times 12$$

$$= 10\times(.00232 + .0078740)\times 12$$

$$= \underline{\underline{1.22''}}$$

**III**

$p_1 = 8.205$ KSF
$\Delta p = 6.8$ KSF
$p_2 = 15.005$ KSF
$e_0 = 0.6030$

$$\Delta h = 10\left(\frac{.017}{1.6030}\log\frac{12.5}{8.205} + \frac{.133}{1.6030}\log\frac{15.005}{12.5}\right)\times 12$$

$$= 10\times(.00194 + .0065816)\times 12$$

$$= \underline{\underline{1.02''}}$$

**IV**

$p_1 = 8.855$ KSF
$\Delta p = 5.9$ KSF
$p_2 = 14.755$ KSF
$e_0 = 0.6025$

$$\Delta h = 10\left(\frac{.017}{1.6025}\log\frac{12.5}{8.855} + \frac{.133}{1.6025}\log\frac{14.755}{12.5}\right)\times 12$$

$$= 10\times(.00159 + .00597808)\times 12$$

$$= \underline{\underline{.91''}}$$

**SVERDRUP & PARCEL**

JOB 4415 - COLUMBIA RIVER BRIDGE SHEET NO. 6 OF 7

DATE 1/17-75

COMPUTATIONS FOR SETTLEMENT BY A. H. CHKD CCL

PIER # 13

V

$p_1 = 9.505$ KSF

$\Delta p = 5.1$ KSF

$p_2 = 14.605$ KSF

$e_0 = .6020$

$$\Delta h = 10\left(\frac{.017}{1.6020}\log\frac{12.5}{9.505} + \frac{.133}{1.6020}\log\frac{14.505}{12.5}\right)\times 12$$

$$= 10\times(.00126 + .00561153)\times 12$$

$$= \underline{\underline{.82}}''$$

VI

$p_1 = 10.155$ KSF

$\Delta p = 4.4$ KSF

$p_2 = 14.555$ KSF

$e_0 = 0.6014$

$$\Delta h = 10\left(\frac{.017}{1.6014}\log\frac{12.5}{10.155} + \frac{.133}{1.6014}\log\frac{14.555}{12.5}\right)\times 1$$

$$= 10\times(.000958 + .0054899)\times 12$$

$$= \underline{\underline{.77}}''$$

VII

$p_1 = 10.805$ KSF

$\Delta p = 3.8$ KSF

$p_2 = 14.605$ KSF

$e_0 = .6010$

$$\Delta h = 10\left(\frac{.017}{1.6010}\log\frac{12.5}{10.805} + \frac{.133}{1.6010}\log\frac{14.605}{12.5}\right)\times 12$$

$$= 10\times(.000672 + .0056150)\times 12$$

$$= \underline{\underline{.75}}''$$

**SVERDRUP & PARCEL**

JOB 4415 - COLUMBIA RIVER BRIDGE
SHEET NO. 7 OF
DATE 1-17-75
COMPUTATIONS FOR SETTLEMENT PIER # 13
BY A.H. CHKD CCC

VIII

$p_1 = 11.455$ KSF
$\Delta p = 3.4$ KSF
$p_2 = 14.855$ KSF

$e_0 = .6004$

$$\Delta h = 10\left(\frac{.017}{1.6004}\log\frac{12.5}{11.455} + \frac{.133}{1.6004}\log\frac{14.855}{12.5}\right)\times 12$$

$$= 10\times(.0004027 + .006229712)\times 12$$

$$= \underline{\underline{.80''}}$$

TOTAL SETTLEMENT, $\Sigma\Delta h = 1.5'' + 1.22'' + 1.02''$
$.91'' + .82 + .77''$
$.75'' + .80''$

$= \underline{\underline{7.8''}}$

SETTLEMENT IN CONGLOMERATE = 0.5"
SETTLEMENT IN CLAY LAYER = 7.8"

TOTAL SETTLEMENT = 8.3"

CH2M HILL

CORNELL, HOWLAND, HAYES & MERRYFIELD
200 S.W. Market, 12th Floor, Portland, Oregon 97201
Telephone: (503) 224-9190, TWX: 910-464-4720, Cable: CH2MHILL

Portland Regional Office

3 February 1975

P6163.55

Sverdrup & Parcel and Associates, Inc.
P.O. Box 369
Bellevue, Washington 98004

Attention: Mr. Jack Allen

Gentlemen:

Subject: I-205 Columbia River Bridge
Main Channel Pier Foundations

We have completed our review of the design concept for the main channel piers as presented in your letter of 17 January 1975. Our settlement analysis included several assumptions that were also used in your computations. These assumptions are:

- Pier footings 60 feet by 150 feet with a bottom elevation of -85 msl
- A total pier load of 130,500 kips giving a unit pressure of 14.7 ksf
- Bottom of Troutdale at elevation -145 msl, as extrapolated from existing boring data
- Stress distribution as shown on Figure 1 of your 17 January 1975 letter

Our assumption on the consolidation and preconsolidation characteristics of the Sandy River Mudstone (silty clay stratum) differs from the assumption used in your analysis. We belive that the Sandy River Mudstone has been preconsolidated to pressures much greater than existing overburden pressures, and that the imposed footing loads do not exceed the preconsolidation pressure.

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FEB 5 1975
SVERDRUP & PARC
& ASSOCIATES IN

Sverdrup & Parcel and Associates, Inc.
Page 2
3 February 1975
P6163.55

On the basis of these assumptions, we have computed total settlement of pier 13 to be about 4.5 inches. A comparison of settlement predictions is as follows:

| | S & P | CH2M HILL |
|---|---|---|
| Conglomerate | 0.5 in. | 0.4 in. |
| Mudstone | 7.8 in. | 4.1 in. |
| TOTAL | 8.3 in. | 4.5 in. |

The basic differences in the above analysis is interpretation of consolidation test data, and assignment of the preconsolidation pressure.

Additional subsurface investigation at the main channel piers would provide the following information that would directly affect prediction of settlements under these piers.

- Determine the depth to the Sandy River Mudstone at the main pier location
- Better definition of the consolidation and preconsolidation characteristics of the mudstone

We are prepared to undertake this program as we have previously discussed with you as soon as authorized. Please call if there are any questions or you require additional information.

Very truly yours,

John Ramage

John Ramage

c

cc: Fred Blanchard

9555

Form FHWA 121 (Rev. 5-73)

UNITED STATES GOVERNMENT

# *Memorandum*

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
Box 300
Salem OR 97308

DATE: October 22, 1974

In reply refer to: 1041BR

SUBJECT: Oregon Project I-205-7(2)303
Columbia River Bridge
Foundation Design Criteria

FROM : G. L. Green, Division Engineer

TO : Mr. F. B. Klaboe, Administrator & State Highway Engineer
Salem, Oregon

Sverdrup and Parcel's September 5 letter outlining revised foundation concepts has been received and partially reviewed. We are concerned with the comments on Piers 11 through 13 which site a possible settlement problem in the strata underlying the Troutdale cemented gravels. Before a commitment of any drilling is made additional information is felt necessary. This information is as follows:

1. What are the approximate pier loads and foundation distribution expected.
2. How much settlement do you anticipate with approximately 60 feet of Troutdale gravel below the caisson (projected Troutdale gravel strata depth from foundation report submitted March 10, 1971).
3. What are the foundation consultant's comments on this specific item.
4. What affect will this design alteration have on the footing size.

We feel that these questions should be presented to Sverdrup and Parcel prior to any decision on additional drilling.

10-28-74 [illegible]

G. L. Green

RECEIVED
STATE HWY ENG
OCT 23 '74
REFER TO
FOR

RECEIVED
OCT 2[illegible] 1974
BRIDGE DIVISION

RECEIVED
OCT 24 1974
OFFICE OF
ASSISTANT STATE HIGHWAY ENGINEER

NOTED
W. J. HART

040.1

9555

Box 300
Salem OR 97308

October 11, 1974

1041BR

Oregon Project I-205-7(2)303
Columbia River Bridge
Consultant's Meeting, October 7

H. A. Schell, Division Bridge Engineer

Mr. G. L. Green, Division Engineer

Personnel representing the States of Washington and Oregon and the consultant, Sverdrup & Parcel, met to discuss the following design problems:

1. The $18 million Washington shore contract to Pier 10.
2. The design problems at Piers 12 and 13.
3. The sometimes-exposed Government Island isthmus and associated construction problems at Piers 17 and 18.
4. The various design problems.

Those attending the meeting were:

OSHD: Walt Hart, Ted Blachly, Phil Oakley, Jerald E. Backstrand, Al Harwood, and Bob Bothman

WSHD: Tom McLain, Pierre Henricksen

S & P: Gerhard Joehnk, Tom Gaffney, Fred Blanchard, Jack Allen, and Ben Gerwick, Consultant.

FHWA: H. A. Schell

Mr. Henricksen informed us that Washington does not have all right of way (Bishop property under the structure) needed for construction. One parcel has not been obtained because a Washington State judge has ruled that impact on the property cannot be assessed until the final EIS has been published. At that time condemnation procedures probably will be initiated, and it would take approximately 3 to 4 months to resolve right of way access. It is expected all items on the EIS will be resolved, and that it should be published in about a month.

NOTED
P. M. OAKLEY

NOTED
W. J. HART

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BRIDGE DIVISION

In his review of the foundation exploration and pile load test information, the consultant noted that at Piers 12 and 13 the structure will rest directly on an undetermined depth of Troutdale gravels. Drilling information acquired at Piers 12 and 13 does not go deep enough to show the lower layer of the Troutdale formation which consists of clay, silt, and sand. The upper layers, consisting of coarse gravel and sand cemented in various degrees, appeared to provide adequate bearing for piling from Pier 13 south. However, if the depth of this cemented sand and gravel in the main river channel is not adequate, load transfer into a compressible material will occur, which could cause some settlement. For these reasons, the consultant has requested additional borings to evaluate the settlement and will utilize this information in the design. The consultant was asked to make written request for this additional work.

Foundation testing and information dictated a spread footing at Pier 12 with the normal cofferdam construction procedure; however, at Pier 13 the water depth will necessitate a caisson-type construction, including high-pressure water jets (400 - 500 psi) to excavate and seat the footing in the Troutdale gravels. (Least disturbance to gravels as possible, to prevent scour.) Seal pours will be based on 100% hydrostatic head and sheet piling, and the caisson will be grouted into the gravel formation to eliminate potential scour. The footings will be protected by 9-inch riprap to at least a 3-foot depth, up to the column, around the entire excavation hole. No riprap will be above the stream bottom.

From Pier 17 south, construction goes into the shallow area of the main river. In order to lift the heavy precast sections it is highly desirable and necessary to have marine equipment. On the north isthmus of Government Island, the ground elevation is approximately +12', and some channel excavation is necessary (to about elevation 0) to avail the site for barge work. It is intended to use precast bell footings for Piers 14 through 28. If adequate permits cannot be obtained for this temporary channel excavation and conventional cofferdam construction is required, it is possible that a different superstructure design might be more economical. (Note grade line also is lowered on Government Island.) The State agreed to discuss this subject with the State environmental people and attempt to determine what type of construction would be approved in this area.

Specific design items were as follows:

1. For Spans 1 through 5 in the superstructure, 12-strand ducts will be used, utilizing 270 ksi strands. For

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OCT 15 1974
BRIDGE DIVISION

Spans 7 through 9, 19-strand ducts will be utilized. The consultant's plans and specifications will not specify the prestressed system; however, several are applicable and VS~~K~~L was the one used for the design.

2. Reinforcing steel used will be grade 60 rebar for the deck and grade 40 in the columns. No. 18 bars will have a mechanical splice.
3. Concrete will be specified as 3500 lb. psi for the footings, 4000 lb. psi for the columns, and 5000 lb. psi for the superstructure.
4. Torsional problems occurred in the design of the crossbeam, and it was necessary to thicken the slab in order to transfer the load by shear to the columns.
5. The consultant requested a pay item for 4-foot excavation outside of the footing because of the excessive depth they must go and because of water problems they will encounter.
6. The joints to be used are: Transflex 650 at the abutments, Transflex 1300 at Pier 7, and Wabo-Maurer at Pier 10.
7. Mr. Gerwick indicated that the tips of the 200-ton / 14-inch / WF / 150-lb piling should be reinforced from 3 to 4 feet to prevent damage. He also suggested 9 ksi design load; however, the soil consultant feels that 1200 psi is adequate. A letter will be forthcoming to explain this situation and ask direction.
8. Lighting: Mounting heights at 40 feet at about 100-foot spacing (200-foot staggered) will give 2 foot-candles with the uniformity ratio of 3:1. The consultant will try 50-foot mounting height at about 135-foot staggered spacing, using high pressure sodium. Mercury vapors will be used for signs. The lighting height will be reduced when the structure is the glide path of the runways.
9. The consultant asked if it might be possible to advance-order the piling prior to contract work, due to the long delay in shipment. I cannot see anything wrong with this procedure, provided it is properly handled.

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10. It was suggested that the contracts for the Washington shore be separate, but those in the river be split between substructure and superstructure.

11. Value engineering should be attempted at the bid stage rather than after award.

12. Access to Spans 1 through 4 was discussed. The consultant proposed access underneath the structure, which is acceptable to Oregon. The State of Washington requested access through the crossbeam. A general resolution of these problems is necessary in order to adequately pursue the final phases of design. The consultant is studying access through the crossbeam.

The consultant indicated that he is attempting to complete the design by the end of the year. It is hoped that by that time the environmental impact statement should be completed and approved by our Washington Office. Condemnation procedures will then be initiated on any unobtained parcels. It is expected that the earliest date the Washington shore project could probably be advertised would be late March or April.

Original Signed by
H. A. Schell
Division Bridge Engr.
H. A. Schell

cc:
Region (10BR)
OSHD (W. Hart)

RECEIVED
OCT 15 1974
BRIDGE DIVISION

CH2M
ENGINEERS PLANNERS ECONOMISTS
CORNELL, HOWLAND, HAYES & MERRYFIELD
1600 S. W. Fourth Avenue, Portland, Oregon 97201, Telephone: 503/224-9190
Portland Regional Office

10 March 1971

Project No. P6163.0

Sverdrup & Parcel and Associates, Inc.
P. O. Box 369
Bellevue, Washington 98004

Gentlemen:

Subject: I-205 Columbia River Bridge
Preliminary Foundation Investigation

Enclosed is our report of the I-205 Columbia River Bridge Preliminary Foundation Investigation. The study determined the soil and groundwater conditions along the proposed bridge alignment, and developed preliminary foundation design criteria.

Foundation materials for the bridge consist of alluvial materials: unconsolidated sands and sandy gravels overlying a very dense gravel conglomerate. The recommended foundations are as follows:

1. North Bridge Abutment & Lewis and Clark Highway. Spread footings on dense weathered gravel.
2. Washington Escarpment. (Below Lewis and Clark Highway) Point bearing piles driven to very dense conglomerate member of Troutdale formation.
3. Lower Washington Slope & North Side of Main Navigation Channel. Spread footings on very dense conglomerate member of Troutdale formation.
4. South of Main Navigation Channel to Government Island. Point bearing piles driven to very dense conglomerate member of Troutdale formation.
5. South Bridge Abutment. Friction piles driven in river sands and sand embankment.

We recommend that certain field tests be included in the final design and initial construction program to verify the preliminary design criteria presented in this report. Prior to final design, the load-settlement characteristics of the dense gravel and very dense conglomerate, upon which spread footings are to be constructed, should be investigated by field plate load tests. As part of the initial construction work, pile load tests should be made to verify the design pile capacities and load-settlement behavior, particularly for piles with relatively high design loads. We do not contemplate that additional soil borings or tests will be required for final design unless the location of piers or concept of the bridge is changed appreciably.

We have enjoyed working with you on this important project. Please let us know if we can be of further assistance in your current work, or in later stages of this project.

Very truly yours,

E. G. Worth

EGW:jh

Enclosures

## AGREEMENT

THIS AGREEMENT, made this 30th day of Sept., 1970, by and between the State of Oregon, by and through its State Highway Commission, hereinafter called "State", and the firm of Sverdrup & Parcel and Associates, Inc. __________, a corporation of the State of Missouri, consisting of - - -

hereinafter called "Consultant."

## WITNESSETH

**RECITALS:**

1. The States of Oregon and Washington, each in its respective state, is presently engaged in the development of Interstate Highway I-205 as a continuous alternate route on the interstate system and in that connection it is necessary to construct a bridge across the Columbia River in the vicinity of Portland, Oregon, and Vancouver, Washington. The portion of the structure within Oregon is a unit of the Washington State Line-Lake Road Section of Interstate Highway I-205 and the portion of the structure within Washington is a unit of the Columbia River to Junction PSH1 Section of Interstate Highway I-205.

To accomplish the construction the two states have entered into a certain agreement dated October 21, 1969, delineating certain things to be done by each state.

Oregon is charged with the responsibility of preparing plans, specifications and estimates for the proposed structure and may engage the services of a consultant, mutually satisfactory to both states, in the performance of this work.

2. Oregon and Washington propose to finance the preliminary type studies and final design of this structure from State and federal funds under Oregon I-205-7 (2) 303 and Washington I-205-1 (16) 8 under congressional legislation relating to federal-aid highways and rules and regulations promulgated by federal authority thereunder.

3. State has found it necessary and advisable to employ Consultant to do certain work, described in detail herein, in connection with the preliminary type studies and final design of said structure.

NOW, THEREFORE, the premises being in general as stated in the foregoing recitals, it is agreed by and between the parties hereto as follows:

K

# I. THINGS TO BE DONE BY CONSULTANT

## A. Preliminary

The services by the Consultants covered by this preliminary phase of the agreement are restricted to a study of the site of and conditions appertaining to the proposed bridge. Based upon such study the submission of a report including a recommendation as to the type of structure which the Consultants consider most appropriate, taking into consideration the aesthetic appearance, the estimated cost and the serviceability of the structure. The study and report shall include, but not be restricted to the following:

1. An investigation of two types of construction or a combination thereof:

   (a) Steel construction with concrete or orthoropic deck, either box or single web girders, horizontally curved to center line alignment.

   (b) Prestressed concrete box girder, either poured in place or precast, horizontally curved to center line alignment.

The types of construction proposed shall conform to the geometric design standards for the National System of Interstate and Defense Highways adopted by the American Association of State Highway Officials and approved by the Secretary of Commerce, as provided by Title 23, United States Code, section 109 (b). Special care shall be given to the studies for substructures for each type to the end that they are compatible aesthetically with the superstructure proposed.

2. For each type of construction considered the report shall include a discussion of the advantages and disadvantages of the type, a cost estimate segregated into quantities of the items entering into the construction with estimated unit cost for each item and a line drawing showing of plan sufficient in scale to indicate pier placement and a side elevation of the structure. Quantities and costs shall be segregated into the portion of the structure in each state. The report shall contain sufficient photographs of colored renderings to show structure as it would be seen by an observer stationed downstream from the bridge. These photographs will be at least 11" x 22" in size and will be folded in the report. The original colored rendering at least 22" x 44" in size, will be furnished to and become the property of State.

3. The Consultant shall employ the services of an experienced architect and shall give consideration to his advice in making a recommendation of the type of structure to be used. Firm to be employed shall be approved by the State of Oregon. Employment of an outside agency for this work is considered to be "specialized services" (See Article III-9).

4. The Consultant shall have in his organization qualified personnel experienced in the design and construction of major structures using the type of construction listed under (b) above or may employ an outside agency having such personnel. Employment of an outside agency for this work is considered to be "specialized services". (See Article III-9).

5. Do such foundation exploration as is necessary to establish proper foundation design criteria and submit a separate report of same, employing a firm which specializes in foundation and soils mechanics. Firm to be employed shall be approved by the State of Oregon. Employment of an outside agency for this work is considered to be "specialized services". (See Article III-9).

An exploration shall consist of drillings to the proposed bottom of footing elevation and to an additional depth equal to at least twice the proposed footing width in sand and/or gravel or other formation and to a greater depth if necessary to properly estimate pile penetrations. If rock formation is encountered holes shall penetrate to a minimum of 15 feet in depth into 90 percent core recovery rock. Drilling in gravel or other formation shall be by rotary or churn drills. Jetting is not permitted. Drilling in rock shall comply with ASTM Specification D-2113.

Minimum explorations are as follows:

(a) North side to river - 18 drill holes, 40 split tube tests;

(b) Main channel spans - 8 drill holes and 80 split tube tests; one drill hole to be placed at approximately the upstream and downstream limits of each pier.

(c) Main channel span to south end - 10 drill holes and 100 split tube tests:

(d) 50 samplings for water content gradation and Atterburg limits, and analysis of same.

The above are to be considered minimum requirements. The consultant is to perform additional foundation investigation if necessary to establish adequate foundation design criteria for the structure proposed.

All foundation inspection work -- drilling, sampling, testing, soils classification, and all other work in connection shall follow procedures outlined in the AASHO publication, "Manual on Foundation Investigation," 1967.

6. Report

The preliminary report shall be submitted in 25 copies on sheets, except for drawing prints, 8-1/2" x 11" in size. A good quality of paper shall be used and text shall either be printed or produced by another acceptable process.

7. Time allowed for Submission of Report

The Consultants shall submit the completed preliminary report within six calendar months from the execution of this agreement exclusive of the time required by the State or other agencies having jurisdiction for review of the work.

8. Consultant shall furnish to State bi-weekly in duplicate a simple memo form of Consultant's choosing stating briefly the progress achieved during the past bi-weekly period and including an estimated percentage of the progress made on the total work involved.

9. Limitations

There are certain conditions which limit Consultant's choice of span arrangement. These, in general, are as follows:

(a) The navigational clearances, both horizontal and vertical, and the position of the piers for both the Main Channel and the Small Craft Channel, shall be as shown on Exhibits B and C. The preliminary studies for all types of construction shall present a Main Channel span that can be erected while maintaining a Main Channel clearance of not less than 300 feet horizontally and full vertical clearance. The positioning of piers, other than those for the Main Channel span and the Small Craft Channel, is optional to the Consultant and shall be based on economic span to support studies. Positioning of piers between the north bank and SR 14 is optional provided the necessary horizontal clearances are maintained for the Burlington Northern crossing, the Evergreen Highway crossing and the SR 14 crossing. Horizontal alignment shown is fixed and not subject to change.

(b) The grade line shall be as shown on Exhibit D. This cannot be altered or revised. The Department of Transportation (Federal Aviation Agency) under Aeronautical Study No. SEA-OE-68-145 has made a determination to the effect that the bridge would not be a hazard to air navigation (see Exhibit E).

(c) The roadway width shall be as shown on Exhibit F.

B. Final Design

1. The services by the Consultant covered by this final design phase of the agreement shall be to Design, prepare contract construction plans (including signing and sign and light standards and fixtures to be installed on the bridge), contract construction specifications, estimates of quantities and estimate of cost for the structure -- all from State-approved preliminary study. Quantity and cost estimates shall be segregated into the portion of the structure in each State. No final design work shall be done until such time as State delivers to Consultant said approved preliminary.

2. Do all checking of shop drawings involved. This to include but not necessarily limited to, reinforcing bar details, structural steel details, prestress concrete calculations and details, wiring and lighting details or other incidental items and construction drawings for cofferdams, erection procedures or other incidental construction drawings. Checking of shop and construction drawings will be paid for on a flat per hour basis. The rates paid per hour for the appropriate labor classification will be stated in Exhibit H attached hereto and made part of this Agreement. In addition, the Consultant shall be reimbursed for direct costs incurred in connection with the checking of shop drawings for computer services, long distance telephone, bulk mailing, and, where services requiring travel are requested in writing by the State, travel and subsistence expenses. The hours paid for and direct costs incurred shall be supported by properly authenticated invoices.

3. All final design shall conform to current design standards of the American Association of State Highway Officials except as modified by the State Highway Bridge Section office practice. The design shall provide for HS20 loading as modified by Section 4 of the Federal Highway Administration PPM 20-4.

4. Contract construction drawings shall comply with "Requirements for Contract Drawings" attached hereto, marked "Exhibit G" and by this reference made a part of this agreement.

5. Construction specifications shall be based on State of Oregon "Standard Specifications for Highway Construction", issue of 1970, and shall include such supplemental specifications and special provisions as are required for a complete construction specification.

6. All design, plans, estimates, specifications and other materials to be furnished by Consultant to State under this agreement shall be prepared in such form that they may be used in performance of the construction work of the project under either a single contract or separate contracts, and State shall select the contract procedure.

7. Documents to be furnished by Consultant to State and the number of copies of each are as follows:

(a) Design calculations - 1 copy, reproducible.

(b) Contract construction plans - 1 original, reproducible.

(c) Contract construction specifications - 1 copy.

(d) Quantity estimates, with calculations - 1 copy.

(e) Estimates of cost - 1 copy.

(f) Approved shop details - 5 copies.

8. Items (a), (b), (c), (d) and (e) of above shall be completed and delivered to State within 19 months after State has furnished Consultant an approved preliminary plan.

Item (f) of 7 above shall be completed as required to accommodate good construction procedure.

9. Should the structure type selected incorporate concrete, superstructure construction, the Consultant may employ the services of engineers experienced in this type of design and construction. Firm to be employed shall be approved by the State.

10. Final foundation design may require explorations to supplement information obtained in the preliminary phase of the work. If it is deemed necessary by Consultant and confirmed in by State that additional explorations are necessary, Consultant shall make such additional explorations. Supplemental explorations shall be performed in the manner outlined for similar work in the preliminary requirements. The firm to be employed shall be satisfactory to State. Supplemental explorations are to be considered a contingent item and no payment will be made for the same unless the supplemental work is authorized by the State.

11. Consultant shall make and so indicate on the final documents an independent check on Items 7 (a), (b), (c), (d) and (e).

12. Consultant shall furnish to State bi-weekly in duplicate a simple memo form of Consultant's choosing stating briefly the progress achieved during the past bi-weekly period and including an estimated percentage of the progress made on the total work involved in the major design items.

13. If, due to pending litigation, or uncertainty of funds available and/or the failure of the Port of Portland to proceed with their currently planned expansion program, the State deems it inadvisable to proceed with final design, the right is reserved to terminate the contract upon completion of phase 1 (preliminary).

## II. THINGS TO BE DONE BY STATE

1. State shall obtain all rights of way required for the project.

2. State shall obtain all utility permits, U. S. Army Corps of Engineers permits and permits from the Burlington Northern Railroad for the Washington shore, and other agreements necessary for the construction of the project.

3. State shall perform all preliminary field survey, establish horizontal and vertical alignment and furnish to Consultant the following: A reproducible Ikon, scale 1" = 200' map, showing horizontal controls, restricted areas, roadway widths and topography for the project; profiles showing vertical controls and alignment; a utilities map; and other data necessary for completion of the work to be done by Consultant.

4. State shall establish centerline monuments along the centerline of the bridge.

5. State shall, at its own expense, furnish to Consultant such standard plans, including but not limited to, plans for handrails, light poles, sign bridges and deck drain devices as Consultant may wish to incorporate into the final design.

6. The State will furnish pencil tracing film stock in such quantities as are necessary for preparation of contract plans. The printed title block appearing on Oregon State Highway Division standard drawings and stock shall remain in place.

7. The State will accept a preliminary study within a period of 90 calendar days after submission of the studies by the Consultant.

In the event State desires revisions to a preliminary study, State and Consultant will agree on time and fee schedule involved in preparation of the revised studies and the times and fees stated herein for completion of the various phases of the work will be adjusted as necessary.

## III. GENERAL REQUIREMENTS

### 1. Conferences - Visits to Site

(a) Consultant shall confer with State from time to time at State's request during the progress of the work to be performed by Consultant under this agreement. Consultant shall prepare and present such information and studies to State as may be pertinent and necessary, or as may be requested by State, in order for State to pass critical judgment on the various features of the work. Consultant shall make such changes, amendments or revisions in the detail of the work as may be required by State. When alternatives are being considered, State shall have the right of selection.

(b) The Bureau of Public Roads shall have the right to participate in conferences between Consultant and State and to participate in the review or examination of the work and progress of Consultant.

### 2. Covenant Against Contingent Fees

Consultant warrants that it has not employed or retained any company or person, other than a bona fide employee working solely for Consultant, to solicit or secure this agreement, and that Consultant has not paid or agreed to pay any company or person, other than a bona fide employee working solely for Consultant, any fee, commission, percentage, brokerage fee, gifts or any other consideration, contingent upon or resulting from the award or making of this agreement. For breach or violation ~~of this warranty~~, State shall have the right to annul this agreement ~~without~~ liability, or, in its discretion, to deduct from the contract price or consideration, or otherwise recover, the full amount of such fee, commission, percentage, brokerage fee, gift or contingent fee.

### 3. Ownership of Documents

All plans, specifications and other data to be furnished by Consultant to State under this agreement shall be delivered to and become the sole property of State. Basic survey notes and sketches, charts, computations and other data prepared or obtained by Consultant under this agreement shall be made available to State upon its request, without restriction or limitation on the use thereof.

### 4. Delays and Extensions

If delays occur, in the prosecution of Consultant's work under this agreement, which in the judgment of State are beyond the control of Consultant, the time for completion of the work as hereinbefore set forth may be extended by State in an amount not to exceed the amount of such unavoidable delay.

### 5. Termination

State may terminate this agreement if Consultant fails to comply with any provision of the agreement; if the progress or quality of the work is unsatisfactory; or for any other cause which, in the judgment of State, makes such termination advisable. In the event of such termination, Consultant shall deliver to State all completed or partially completed satisfactory work and State shall pay Consultant for such satisfactory work. The amount paid shall be determined after taking into account not only the provisions for payment for completed work under Part IV of this agreement, but also Consultant's costs incurred for such satisfactory work, the value of such satisfactory work to State and any unpaid claims against Consultant of which State has notice in connection with Consultant's work under this agreement.

### 6. Disputes

Any dispute concerning a question of fact in connection with the work shall be resolved by conference between the parties hereto, but the decision of State shall be final. Nothing in this agreement shall preclude either party from taking any legal action it may deem advisable should mutual agreement not be reached.

### 7. Responsibility for Claims and Liability

Consultant shall save and hold harmless the State of Oregon, the State Highway Commission, the State of Washington, the Washington State Highway Commission, their members, officers, agents and employees, from all claims, suits or actions of whatsoever nature caused by or arising out of the activities of Consultant, its subcontractors, agents or employees, under this agreement.

### 8. Compliance with Laws

Consultant shall comply with all federal, state and local laws, ordinances and rules applicable to the work under this agreement. Furthermore, such provisions as are necessary to comply fully with the laws of the State of Oregon concerning public contracts and provisions to be included therein are hereby made a part of this agreement by this reference and Consultant shall comply with the obligations and other provisions of said laws the same as though such obligations and provisions were fully set out herein.

### 9. Assignment, Transfer or Subcontracting

Consultant shall not assign, transfer or subcontract this agreement, any part hereof or any part of the work covered by this agreement, without the prior written consent of State, and any such assignment, transfer or subcontracting without such prior written consent shall be grounds for immediate termination of this agreement by State. No consent of State shall be given in any case, however, to any subcontracting in excess of 50 percent of the work of Consultant under this agreement (excluding "specialized services" designated as such in this agreement), based on the amount of the total contract price attributable to such subcontracted work.

Architectural services, I-A-3; special engineering services for concrete design, I-A-4 and foundation exploration services, I-A-5 are considered "specialized services" and not subject to the 50% sub-contract limitation.

10. Endorsement

All reports, estimates and other engineering data submitted to State by Consultant shall show thereon the endorsement of Consultant.

11. Changes in Work

State reserves the right, without impairing this agreement, to order changes or alterations in the work to be performed hereunder by Consultant. If changes or alterations ordered affect the cost or progress of the work, adjustments shall be made in the time for performance of the work or compensation owing to Consultant, as the case may be, as mutually agreed upon between State and Consultant.

12. Successors and Assigns

The provisions of this agreement and all rights and obligations hereunder shall extend to and bind the approved successors, assigns, transferees and subcontractors of Consultant and any successor or assign of State.

13. Certificate

The executed certificate attached hereto and marked "Exhibit A" is by this reference made a part of this agreement.

14. Prohibition Against Hiring Certain Personnel

It is expressly understood and agreed that Consultant has at this time and will continue to have an adequate technical and administrative staff and force to perform the work covered by this agreement. As a part of the consideration to State for the award of this agreement to Consultant, Consultant agrees not to engage, on a full, part-time or other basis, during the period of this agreement, without the prior written consent of State, any State personnel except regularly retired employees who have been in the employ of State, until such employees have been severed from State employment for at least one full year.

15. Equal Opportunity

During the performance of this agreement, the Consultant, for itself, its assignees and successors in interest (hereinafter referred to as the "Consultant"), agrees as follows:

(1) Compliance with Regulations: The Consultant will comply with the Regulations of the Department of Commerce relative to nondiscrimination in federally-assisted programs of the Department of Commerce (Title 15, Code of Federal Regulations, Part 8,

hereinafter referred to as the Regulations), which are herein incorporated by reference and made a part of this agreement.

(2) Nondiscrimination: The Consultant, with regard to the work performed by it after award and prior to completion of the agreement work, will not discriminate on the ground of race, color, or national origin in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The Consultant will not participate either directly or indirectly in the discrimination prohibited by Section 8.4 of the Regulations, including employment practices when the agreement covers a program set forth in Appendix A-II of the Regulations.

(3) Solicitations for Subcontracts, Including Procurements of Materials and Equipment: In all solicitations either by competitive bidding or negotiation made by the Consultant for work to be performed under a subcontract, including procurements of materials or equipment, each potential subcontractor or supplier shall be notified by the Consultant of the Consultant's obligations under this agreement and the Regulations relative to nondiscrimination on the ground of race, color or national origin.

(4) Information and Reports: The Consultant will provide all information and reports required by the Regulations, or orders and instructions issued pursuant thereto, and will permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the State Highway Department or the Bureau of Public Roads as appropriate, and shall set forth what efforts it has made to obtain the information.

(5) Sanctions for Noncompliance: In the event of the Consultant's noncompliance with the nondiscrimination provisions of the agreement, the State Highway Department shall impose such agreement sanctions as it or the Bureau of Public Roads may determine to be appropriate, including, but not limited to,

(a) withholding of payments to the Consultant under the agreement until the Consultant complies, and/or

(b) cancellation, termination or suspension of the agreement, in whole or in part.

(6) Incorporation of Provisions: The Consultant will include the provisions of paragraph (1) through (6) in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Regulations, order, or instructions issued pursuant

thereto. The Consultant will take such action with respect to any subcontract or procurement as the State Highway Department or the Bureau of Public Roads may direct as a means of enforcing such provisions including sanctions for noncompliance: Provided, however, that, in the event a Consultant becomes involved in, or is threatened with, litigation with a subcontractor or supplier as a result of such direction, the Consultant may request the State to enter into such litigation to protect the interests of the State, and, in addition, the Consultant may request the United States to enter into such litigation to protect the interests of the United States.

## 16. Records

Consultant and its subcontractors shall maintain all books, documents, papers, accounting records and other evidence pertaining to work performed or costs incurred by Consultant under or in connection with this agreement, and shall make such materials available at all reasonable times during the period of this agreement and for three years after the date of final payment to Consultant under this agreement, for inspection by State, the Bureau of Public Roads or any authorized representatives of the federal government, and copies thereof shall be furnished by Consultant if requested.

## 17. Jurisdiction

This agreement shall be governed, as to validity, interpretation and performance, by the laws of the State of Oregon. Consultant hereby consents to the jurisdiction of the courts of the State of Oregon and to the commencement and maintenance in the State of Oregon by State or any third party of any suit, action or proceeding based on any claim arising out of or in connection with Consultant's work under this agreement. In the event that Consultant is a corporation but not an Oregon corporation, Consultant shall obtain a certificate of authority to do business in the State of Oregon from the Corporation Commissioner of the State of Oregon before entering into this agreement. If such certificate is not obtained by Consultant, however, at the time it enters into this agreement, then Consultant hereby appoints the Corporation Commissioner of the State of Oregon as Consultant's agent for service of process in connection with any suit, action or proceeding arising out of or in connection with Consultant's work under this agreement. In the event that Consultant is doing business individually and resides outside the State of Oregon or is a partnership, the members of which reside outside the State of Oregon, Consultant hereby appoints ______C.T. Corporation System____ in the State of Oregon as Consultant's agent for service of process in connection with any suit, action or proceeding arising out of or in connection with Consultant's work under this agreement.

18. Administration of Agreement.

All elements and facets of this agreement will be administered by the State of Oregon.

19. Work Under the Agreement.

All work under this agreement shall be satisfactory to the State of Oregon, the State of Washington, and the U. S. Department of Transportation Federal Highway Administration.

## IV. PAYMENT

### Fee Schedule

### A. Preliminary

| No. | Item | Unit & Quantity | Unit Price | Amount |
|---|---|---|---|---|
| 1 | Foundation Investigation | | | |
| (a) | Administration Fee | All | L. S. | $ 12,500.00 |
| (b) | Foundation Report | All | L. S. | 7,500.00 |
| (c) | Mobilization & Demobilization | All | L. S. | 11,500.00 |
| (d) | Land Drilling | 1010 L. Ft. | $16.50 per L. Ft. | 16,665.00 |
| (e) | Water Drilling | 1490 L. Ft. | $20.50 per L. Ft. | 30,545.00 |
| (f) | Split Tube Sampling | 220 Only | $ 5.00 per Each | 1,100.00 |
| (g) | Analysis of Split Tube Sampling for Water Content, Gradation & Atterburg Limits | 50 Only | $55.00 per Each | 2,750.00 |
| (h) | Undisturbed Samples | 10 Only | $11.00 per Each | 110.00 |
| (i) | Analysis of Undisturbed Samples | All | L. S. | 6,000.00 |
| 2 | Preliminary Report Complete | All | L. S. | 186,300.00 |
| | Total Preliminary | | | $274,970.00 |

## B. FINAL DESIGN

| No. | Item | Unit & Quantity | Unit Price | Amount |
|---|---|---|---|---|
| 1 | Design calc., contract constn. plans, contract constn. specif. quantity estimates and cost estimates for steel struct. | All | L. S. | $ 1,183,000.00 |
| 2(a) | Check shop and constn. drawings for steel struct. | 9000 hrs. | See Exh. H | 127,800.00 |
| (b) | Direct costs in connection with checking shop & constn. drawings for steel struct. (Computer Services, Long Dist. Telephone, Bulk Mailing) | All | At actual Cost | 3,200.00 |
|  | Total for Steel Struct. |  |  | $ 1,314,000.00 |
| 3 | Design calc., contract constn. plans, contract constn. specif. quantity estimates and cost estimates conc. struct. | All | L. S. | 1,273,000.00 |
| 4(a) | Check shop and constn. drawings for conc. struct. | 9000 hrs. | See Exh. H | 161,600.00 |
| (b) | Direct costs in connection with checking shop & constn. drawings for conc. struct. (Computer Services, Long. Dist. Telephone, Bulk Mailing) | All | At Actual Cost | 44,400.00 |
|  | Total for Conc. Struct. |  |  | $ 1,479,000.00 |
| 5 | Design calc., contract constn. plans, contract constn. specif. quantity estimates and cost estimate for combined steel and concrete struct. | All | L. S. | 1,273,000.00 |

| No. | Item | Unit & Quantity | Unit Price | Amount |
|---|---|---|---|---|
| 6(a) | Check shop and constn. drawings for combined steel & conc. struct. | 9000 hrs. | See Exh. H | 161,600.00 |
| (b) | Direct costs in connection with checking shop & constn. drawings for combined steel & conc. struct. (Computer Services, Long Dist. Telephone, Bulk Mailing) | All | At Actual Cost | 44,400.00 |
|  | Total Combined Steel & Concrete Structures |  |  | $ 1,479,000.00 |
| 7 | Supplemental Found'n Investig. |  |  |  |
| (a) | Mobilization & Demobilization for Land Drilling | All | L. S. | 4,000.00 |
| (b) | Mobilization & Demobilization for Water Drilling | All | L. S. | 6,000.00 |
| (c) | Land Drilling | 500 L. Ft. | $19.30 per L. Ft. | 9,650.00 |
| (d) | Water Drilling | 700 L. Ft. | $24.00 per L. Ft. | 16,800.00 |
| (e) | Split Tube Sampling | 100 Only | $6.00 per Each | 600.00 |
| (f) | Analysis of split tube sampling for water content, gradation & Atterburg Limits | 25 Only | $60.00 per Each | 1,500.00 |
| (g) | Undisturbed Samples | 5 Only | $12.00 per Each | 60.00 |
| (h) | Analysis of Undisturbed Samples | All | L. S. | 2,800.00 |
| (i) | Report | All | L. S. | 2,000.00 |
|  | Total Supplemental Foundation Investig. |  |  | $ 43,410.00 |

Totals

| | |
|---|---|
| Preliminary (A-1(a) through (i) & A-2) + Steel Design (B-1 & B-2(a) & (b) ) | $ 1,588,970.00 |
| Preliminary (A-1(a) through (i) & A-2) + Conc. Design (B-3 & B-4(a) & (b) ) | 1,753,970.00 |
| Preliminary (A-1(a) through (i) & A-2) + Combined Design (B-5 & B-6(a) & (b) ) | 1,753,970.00 |
| Supplemental Foundation Investigation (7(a) through (i) ) | 43,410.00 |

Items A-1(a), 1(b), 1(c), 1(i), 2 and B-1, 3, 5, 7(a), 7(b), 7(h) and 7(i) are fixed quantity items paid for on a lump sum basis.

Items A-1(d), 1(e), 1(f), 1(g), 1(h) and B-2(a), 2(b), 4(a), 4(b), 6(a), 6(b), 7(c), 7(d), 7(e), 7(f), and 7(g) are variable. Quantity of work paid for will be the actual quantity of work performed, properly documented by signed field measurements, payrolls or other authenticated records.

Payment for Items B-2 (a) & 2 (b) will not exceed $131,000 without authorization for a change in the contract amount.

Payment for Items B-4(a) & 4(b) will not exceed $206,000 without authorization for a change in the contract amount.

Payment for Items B-6(a) & 6(b) will not exceed $206,000 without authorization for a change in the contract amount.

The limiting amount under this agreement, without renegotiation, is contingent on the type structure chosen for final design from the three preliminary studies ordered. One of the following totals will apply:

| | |
|---|---|
| 1. Preliminary + Steel Design + Supp. Found'n Investigation + Contingencies (± 5%) | $ 1,714,000.00 |
| 2. Preliminary + Conc. Design + Supp. Found'n Investigation + Contingencies (± 5%) | 1,887,000.00 |
| 3. Preliminary + Combined Steel & Conc. Design + Supp. Found'n Investigation + Contingencies (± 5%) | 1,887,000.00 |

2. For the preliminary phase of work under this agreement (I-A 1 through 9, of things to be done by consultant, fee schedule Items 1 (a) through (i) and 2), partial payments shall be made not oftener than once per month and shall be based on the percentage of completion for lump sum items and a statement of actual quantities of work performed on unit price items as certified by Consultant and approved by State. The amount of any partial payment shall be equal to the value of the completed work, less such amounts as may have been previously paid, less such other amounts as may be deductible or as may be owing and due to State for any cause and less an amount to be retained in protection of State's interests. The amount to be retained in protection of State's interests from any given partial payment shall be such amount as, when added to the sum of such amounts previously retained, will make the total of such retained amounts equal to 10 percent of the value of the work completed by Consultant under the preliminary phase of this agreement. In no case, however, except where necessary to cover all unpaid claims against Consultant of which State has notice arising out of or in connection with this agreement, shall such total exceed five percent of the contract price for the preliminary phase of the work. After the total retained amount has reached the maximum here indicated, that amount shall be retained until such time as final payment for the preliminary phase of the work is made. The total of all partial payments, however, shall not exceed 97% of the contract price for the preliminary phase of the work prior to completion and acceptance by State of all work for the preliminary phase of the work to be performed by Consultant under this agreement and any agreements supplementary thereto. Partial payments shall not be construed as an acceptance or approval of any part of the work covered thereby and shall in no way relieve Consultant of responsibility for defective performance of any work. Approval by State of Consultant's certified percentage of completion of lump sum items and statement of actual quantities of work performed on unit price items shall be for the purpose only of partial payments to Consultant; use of such approved percentage or statement of actual quantities as a basis for making payments to subcontractors shall be at Consultant's risk. State reserves the right to make such audits of Consultant's records as State deems necessary to verify billing. Final payment for work under the preliminary phase of this agreement will be made within thirty days after State delivers to consultant an accepted preliminary study.

3. For the final design phase of work under this agreement (IB 1 through 12 of things to be done by consultant, fee schedule Items IB 1 through 6, whichever items are applicable and 7), partial payments shall be made not oftener than once per month and shall be based on the percentage of completion for lump sum items, a statement of actual quantities of work performed on unit price items, a statement of productive time spent on work based on hourly rates under Exhibit H and a statement of costs incurred which are reimbursable hereunder as certified by Consultant and approved by State. The amount of any partial payment shall be equal to the value of the completed work, less such amounts as may have been previously paid, less such other amounts as may be deductible or as may be owing and due to State for any cause and less an amount to be retained in protection of State's interests. The amount to be retained in protection of State's interests from any given partial payment shall be such amount as, when added to the sum of such amounts previously retained, will make the total of such retained amounts equal to 10 percent of the value of the work completed by Consultant under this agreement. In no case, however, except where necessary to cover all unpaid claims against Consultant of which State has notice arising out of or in connection with this agreement, shall such total exceed five percent of the contract price. After the retained amount has reached five percent of the said contract amount, that amount will be retained until such time as final payment is made with the following proviso: Upon substantial completion of the work under the contract which shall be understood to be not less than 97½% of the work, the engineer may, at his discretion, reduce the retained amount to an amount equivalent to not less than 200% of the contract value or estimated value or estimated cost, whichever is greater, of the work remaining to be done by Consultant under this agreement and any agreements supplementary thereto. Partial payments shall not be construed as an acceptance or approval of any part of the work covered thereby and shall in no way relieve Consultant of responsibility for defective performance of any work. Approval by State of Consultant's certified percentage of completion of lump sum items and statement of actual quantities of work performed on unit price items, a statement of productive time spent on work based on hourly rates under Exhibit H and a statement of costs incurred which are reimbursable hereunder shall be for the purpose only of partial payments to Consultant; use of such approved percentage or statement of actual quantities as a basis for making payments to subcontractors shall be at Consultant's risk. State reserves the right to make such audits of Consultant's records as State deems necessary to verify billing. Final payment for work under the final design phase of this agreement will be made within thirty days after construction work on the project is complete.

IN WITNESS WHEREOF, the parties hereto have set their hands and affixed their seals as of the day and year first above written.

This agreement was approved by the Oregon State Highway Commission on Sept 30, 1970, at which time the Secretary for the commission was authorized and directed to sign said agreement for and on behalf of the commission. Said authority is set forth in Volume 55, Page _______, Minute Book of the Oregon State Highway Commission.

Floyd Query
Floyd Query, Secretary

APPROVED:

A. F. Johnson
Assistant State Highway Engineer

APPROVED AS TO FORM:

Chief Counsel

CONSULTANT

SVERDRUP & PARCEL AND ASSOCIATES Inc.

By R. D. Bone
Assistant Vice President.

C.A. GARDNER

December 29, 1970

Sverdrup & Parcel
And Associates Inc.
505 - 106th Ave. N. E.
P O Box 369
Bellevue, Washington 98004

Attention: R. D. Bane, P. E.

Dear Mr. Bane:

Columbia River Bridge No. 9555
Route I-205

I have your letter of December 23, 1970, and accompanying revised fee schedule for the preliminary phase of the work. The fee schedule appears satisfactory to me.

This is to confirm my verbal instructions of December 22, 1970 to Mr. Allen of your office that you proceed with the additional drilling.

Very truly yours,

R. L. Porter
State Highway Engineer
By ORIGINAL SIGNED
IVAN D. MERCHANT

Ivan D. Merchant
Bridge Engineer

CAG/ag

NOTED
IVAN D. MERCHANT

SVERDRUP & PARCEL AND ASSOCIATES, Inc.
*Consulting Engineers*
805 - 106TH AVENUE N. E.
P. O. BOX 369
BELLEVUE, WASHINGTON 98004

December 23, 1970

Oregon State Highway Division
Highway Building
Salem, Oregon 97310

Attention: Mr. Ivan D. Merchant
Bridge Engineer

Gentlemen:

Subject: Phase A - Preliminary Design
Columbia River Bridge No. 9555
Route I-205

Test holes for the Preliminary Foundation Investigation have disclosed conditions which require additional investigation beyond the minimum program set forth in our agreement. On the Washington shore, where the top of dense gravels is near ground surface, we have encountered a sand layer under the gravel. Near Government Island in the river, the top of gravel is somewhat lower than anticipated and a layer of silty material has been discovered below the gravel. These conditions require deeper drilling and one additional test hole in the river.

In order to establish adequate foundation design criteria, we recommend that the drilling program for the preliminary phase be revised as shown on the enclosed schedule. We will be pleased to furnish additional data if desired and will appreciate your early consideration of the revised drilling program.

Very truly yours,

SVERDRUP & PARCEL AND ASSOCIATES, Inc.

R. D. Bane

R. D. Bane, P. E.
Assistant Vice President

NOTED
IVAN D. MERCHANT

Enclosure

cc: Robert L. Schroeder,
Metropolitan Engineer

## IV. PAYMENT

### Fee Schedule

### A. Preliminary

| No. | | Unit | Unit & Quantity | Unit Price | Amount |
|---|---|---|---|---|---|
| 1 | | Foundation Investigation | | | |
| | (a) | Administration Fee | All | L.S. | $ 12,500.00 |
| | (b) | Foundation Report | All | L.S. | 7,500.00 |
| | (c) | Mobilization & Demobilization | All | L.S. | 11,500.00 |
| | (d) | Land Drilling | 1700 L.Ft. | $16.50/L.Ft. | 28,050.00 |
| | (e) | Water Drilling | 2300 L.Ft. | $20.50/L.Ft. | 47,150.00 |
| | (f) | Split Tube Sampling | 450 Only | $ 5.00/Ea. | 2,250.00 |
| | (g) | Analysis of Split Tube Sampling for Water Content, Gradation & Atterburg Limits | 50 Only | $55.00/Ea. | 2,750.00 |
| | (h) | Undisturbed Samples | 20 Only | $11.00/Ea. | 220.00 |
| | (i) | Analysis of Undisturbed Samples | All | L.S. | 6,000.00 |
| 2 | | Preliminary Report Complete | All | L.S. | 186,300.00 |
| | | Total Preliminary | | | $304,220.00 |

Bikewalk #1

OREGON STATE
HIGHWAY DIVISION

HIGHWAY BUILDING • SALEM, OREGON • 97310

March 29, 1972

Sverdrup & Parcel & Associates, Inc.
P. O. Box 369
Bellevue, Washington 98004

Attention Mr. R. D. Bane, P. E.
Assistant Vice President

Gentlemen:

I-205 Columbia River Bridge
Bridge 9555
Pedestrian-Bikeway Study

Under the terms of the State's agreement with you, dated September 30, 1970, relative to "Changes in Work", you were requested to prepare a feasibility study for carrying an eight-foot pedestrian-bikeway on the subject bridge. The study was to include cost estimates and your recommendation as to the best location for the pedestrian-bikeway. Prime consideration was to be given to the safety of bicyclists, pedestrians, and motorists.

Your proposal of March 20, 1972, for furnishing the services described above has been received and we agree that your compensation shall be as follows:

1. Salaries and Overhead = Productive Payroll Costs multiplied by a factor of 1.95.
2. Direct costs = computer time, print, et cetera.
3. Fixed Fee = $800.

Based on the above, it is estimated that the total cost of this study will not exceed $7,000.

If this amendment is satisfactory to you, please indicate your approval by endorsing the original of this letter in the space provided and return the same to me.

Very truly yours,

George M. Baldwin
Administrator of Highways
By A. E. Johnson
A. E. Johnson
Assistant State Highway Engineer

RJW:dh

cc Mr. W. M. Foster
Washington State Highway Department

Amendment satisfactory to
Sverdrup & Parcel & Associates, Inc.

K. D. Bang
By

Mar. 29, 1972
Date

OREGON STATE
HIGHWAY DIVISION

HIGHWAY BUILDING • SALEM, OREGON • 97310

|  |  |  |  |  |  |
|---|---|---|---|---|---|
|  | RDB | [illegible] |  | RJA |  |
|  | CET |  |  | AAI |  |
|  | GMA |  |  | RLS |  |
|  | AAS |  |  | DUA |  |
|  | GMM |  |  | TAG |  |
|  | GDM |  |  | EAK |  |
|  | ALP |  |  | PAT |  |
|  |  |  |  |  |  |
| JOB 3360 |  |  |  |  |  |

Bike Study #2

December 27, 1972

Mr. R. D. Bane, P.E.
Assistant Vice President
Sverdrup & Parcel & Associates, Inc.
P. O. Box 369
Bellevue, Washington 98004

H. E. Foster
cy Shroy
Hall Ward
H. J. Coulter
V. D. Tolls
1-2-73

Dear Sir:

I-205 Columbia River Bridge
Bridge No. 9555
Pedestrian-Bikeway Study
Second Amendment

By the March 22, 1972 letter-amendment to the State's agreement with you dated September 30, 1970, you agreed to make a pedestrian-bikeway feasibility study for the subject project. The study has been completed and a report submitted providing cost estimates and alternate locations for a bikeway.

By our November 28, 1972 letter, you were requested to make an additional bikeway study to include alternates not heretofore considered. The new study will provide cost estimates for a five-foot wide path instead of the eight-foot path previously considered, and paths constructed of precast units supported by brackets. Comparisons will be made among all alternates, both the new ones and those previously considered.

On December 21, 1972, Mr. Walter J. Hart discussed with you the addition of a fixed fee to this amendment, which is as shown below.

It is agreed that your compensation for work done as outlined in this second amendment and our November 28, 1972 letter shall be as follows:

RECEIVED
JAN 2 - 1973
BRIDGE DIVISION

NOTED
R.J. WRIGHT

RECEIVED
DEC 29 1972
SVERDRUP & PARCEL & ASSOCIATES INC.

NOTED
R. W. ELLISON

1. Salaries and Overhead = productive payroll costs multiplied by 1.95.
2. Direct costs = computer time, printing, et cetera.
3. Fixed Fee = $400.

It is estimated that the total cost of the work to be done under this second amendment will not exeed $5,000.

If this second amendment is satisfactory, please indicate your approval by endorsing the original of this letter in the space provided and return it to me.

Very truly yours,

A E Johnson

A. E. Johnson
Assistant State Highway Engineer

Amendment satisfactory to
Sverdrup & Parcel & Associates, Inc.

R. D. Bane
By

Dec. 30, 1972
Date

cc Mr. W. M. Foster
Washington State Highway Department

RECEIVED
JAN 2 - 1973
BRIDGE DIVISION

RECEIVE
JAN [illegible] 1973
OFFICE OF
A. E. JOHNSON
[illegible]

Consultant Agreement
9555
Test Pile

# SUPPLEMENTAL AGREEMENT

THIS SUPPLEMENTAL AGREEMENT, made and entered into, by and between the STATE OF OREGON, by and through its Department of Transportation, Highway Division, hereinafter called "State" and the firm of Sverdrup & Parcel and Associates, Inc., a corporation of the State of Missouri, hereinafter called "Consultant".

## WITNESSETH

RECITALS:

1. WHEREAS, State and Consultant entered into an agreement on September 30, 1970, employing Consultant to do the preliminary type studies, final design, and other work in connection with the construction of a bridge across the Columbia River in the vicinity of Portland, Oregon, and Vancouver, Washington (US Interstate Highway I-205); and State and Consultant entered into agreements for bike path studies in the form of a first letter amendment dated March 29, 1972 and a second letter amendment dated December 27, 1972.

2. WHEREAS, State and Consultant now desire to supplement said agreement of September 30, 1970 and letter amendments to said agreement to provide for certain changes in obligations of both State and Consultant as hereinafter set forth;

NOW, THEREFORE, the premises being in general as stated in the foregoing RECITALS, it is mutually agreed upon by and between the parties hereto as follows:

1. That the terms and conditions of that said agreement entered into by State and Consultant on September 30, 1970, and first letter amendment on March 29, 1972 and second letter amendment on December 27, 1972, by reference hereof are made a part of this supplemental agreement and are to remain in force and effect except as herein modified. Item 9, page 9 of the basic agreement dated September 30, 1970 is amended as follows: State authorizes the subletting of the test pile program to the firm of Cornell, Howland, Hayes and Merryfield/Hill, the work on the test pile program for an amount not to exceed $87,480 (Eighty-seven Thousand Four Hundred Eighty dollars) unless the overrun has received prior approval by the State.

2. Consultant shall provide all engineering services necessary to complete the program for test piles and plate load tests in accordance with the Consultant's proposal of June 20, 1973, marked Exhibit "A", attached hereto and by this reference made a part of this supplement.

3. Compensation to the Consultant and subconsultant for all work required under this supplement shall not exceed $101,030 (One Hundred One Thousand Thirty dollars). Such amount includes a $4,800 (Four Thousand Eight Hundred dollars) contingency fund for possible overruns. The use of the contingency in whole or in part must have prior approval of the State. The details of payment are included as part of Exhibit "A".

4. All reports required relative to the work under this supplement shall be submitted no later than eight (8) weeks after completion of the test pile and plate load test contract.

5. The effective date of this supplemental agreement is September 17, 1973.

IN WITNESS WHEREOF, the parties hereto have set their hands and affixed their seals as of the day and year first above written.

This agreement was approved by the Oregon Transportation Commission on Oct. 24, 1973, at which time F. B. Klaboe, Administrator and State Highway Engineer, was authorized and directed to sign said agreement for and on behalf of the Commission. Said authority is set forth in Volume 1, Page 140, Minute Book of the Oregon Transportation Commission.

STATE OF OREGON, BY AND THROUGH
ITS DEPARTMENT OF TRANSPORTATION,
HIGHWAY DIVISION

F B Klaboe
Administrator and State Highway Engineer

APPROVED:

Assistant State Highway Engineer

APPROVED AS TO FORM:

Assistant Attorney General
and Counsel

DEPARTMENT OF GENERAL SERVICES

By
Leander Quiring, Director

SVERDRUP & PARCEL AND ASSOCIATES, INC.

By
Assistant Vice President

**SVERDRUP & PARCEL AND ASSOCIATES, Inc.**
*Consulting Engineers*
805 - 108TH AVENUE N. E.
P. O. BOX 369
BELLEVUE, WASHINGTON 98004

June 20, 1973

Oregon State Highway Division
Highway Building
Salem, Oregon 97310

Attention: Mr. Walter J. Hart

Gentlemen:

Subject: I-205 Columbia River Bridge, Bridge 9555
Engineering Proposal - Test Piles and
Plate Load Tests

We are pleased to submit this proposal for engineering services in connection with the proposed program of test piles and plate load tests for which specifications were submitted by our letter dated June 11, 1973. The services include conducting the test program and preparing a report of the findings; said test program to be executed by a contractor performing the work according to documents prepared, issued, and administered by the Oregon State Highway Division.

We propose to accomplish the following general scope of work:

1. Provide a Project Engineer to furnish general supervision of the Test Program, including but not limited to:

   Coordination of contract administration of the project with the State.

   Review shop drawings, diagrams, illustrations, catalog data, schedules and samples, the results of tests and inspections, and other data which the Contractor is required to submit for conformance with the design concept of the Test Program and compliance with the information given in the Contract Documents.

   Review and approve the Contractor's work plans, schedules and submittals describing construction methods, test equipment, test apparatus, and instrumentation.

   Supervise the test pile driving and the pile and plate load testing work.

   Supervise work of the Resident Inspector and other field personnel.

RECEIVED
JUN 21 1973
BRIDGE DIVISION

EXHIBIT A

NOTED
W. J. HART

Furnish general inspection of the Contractor's work in behalf of the State by periodic visits to the site of the Test Program to observe the progress and quality of the work and to determine, in general, if the work is proceeding in accordance with the intent of the Contract Documents. On the basis of these visits, we will keep the State informed of the progress of the work, will endeavor to guard the State against defects and deficiencies in the work of the Contractor(s) and may reject work or materials that fail to conform to contract requirements.

Investigate and evaluate the Contractor's unusual or extraordinary claims. Present the claim evaluation and recommendations in a letter report to the State.

Make a final inspection of the construction jointly with representatives of the State and submit a final report upon which final payment and termination of the construction contract(s) can be based.

2. Provide on-site inspection services for all the work by the Contractor in performing the Test Program:

Furnish the Resident Inspector(s) and necessary assistants for the construction to act as agent(s) of the State in his relations with the Contractor(s) to provide on-the-job, day-to-day inspection of the work, to inspect and assist in layout of the work; to prepare monthly progress reports on the work; to assist in determining the amount of payments due the Contractor(s), as set forth in the Contract Documents; and to keep all records, maps, and plans necessary for the preparation of final report.

Submit monthly progress payment recommendations, prepare and submit contract change orders, and such other reports as required by federal participation.

The day-to-day resident inspection shall include, but is not limited to, the following:

Site preparation.

Installing casings and driving test piles.

RECEIVED
JUN 21 1973
BRIDGE DIVISION

EXHIBIT A

Erecting pile load test reactions, apparatus and instrumentation.

Conducting pile load tests.

Removing pile load test piles, reactions, apparatus, and instrumentation.

Excavating for plate load tests.

Erecting plate load test reactions, apparatus, and instrumentation.

Conducting plate load tests.

Removing plate load test reactions, apparatus, and instrumentation.

3. Provide Test Event engineering to continuously staff the load tests, direct the loading and unloading by the Contractor, and record the appropriate data for the entire duration of the Pile Load Tests and Plate Load Tests.

4. Analyze the data of the Test Program and develop design recommendations for foundations.

5. Prepare a report of the results of the Test Program, including recommended foundation design criteria, recommended general foundation designs, and suggestions for any additional final design foundation investigations and field tests. Submit 25 copies of report within 8 weeks after completion of Test Program.

These services will be furnished at the rates shown on the attached Fee Schedule. The total amount shown on the Schedule is $96,230.00 based on an estimated 6 month duration, 20 scheduled load tests, and 6 estimated load retests.

We plan to employ the services of the firm of Cornell, Howland, Hayes & Merryfield to conduct the test pile program and to prepare the report.

RECEIVED
JUN 21 1973
BRIDGE DIVISION

EXHIBIT A

This proposal is based upon accomplishment by the State of the following items:

1. State shall obtain all rights-of-way required for the project.
2. State shall obtain all utility permits, U. S. Department of Transportation permits, Corps of Engineers' permits, and other agreements necessary for the project.
3. State has performed preliminary field survey, established horizontal and vertical alignment and will furnish the following: a reproducible Mylar, scale 1" = 100' map, showing horizontal controls, restricted areas, roadway widths and topography for the project; profiles showing vertical controls and alignment; a utilities map; and any other data in State's files that might be applicable to the work.
4. State shall establish center line monuments along the center line of the bridge, specific monuments on each bank of the river and additional monuments on each bank to provide control points adequate to permit the proper location of the work.

We hope that this proposal meets with your approval. However, if you have any questions please contact us.

Very truly yours,

SVERDRUP & PARCEL AND ASSOCIATES, Inc.

R. D. Bane

R. D. Bane, P. E.
Assistant Vice President

Attachment

RECEIVED
JUN 21 1973
BRIDGE DIVISION

EXHIBIT A

## TEST PILES AND PLATE LOAD TESTS

## FEE SCHEDULE

| Item | Quantity | Unit Cost | Estimated Cost |
|---|---|---|---|
| **I. CH2M/HILL** | | | |
| (a) Project Administration and Supervision | | | |
| Project Manager (Senior Engineer, part-time) | 6 months | $ 980/mo. | $ 5,880 |
| Resident Inspector (Staff Engineer, full-time) | 6 months | 3,040/mo. | 18,240 |
| (b) Pile and Plate Load Tests | | | |
| Test Engineering (Staff Engineers, test duration) | 20 scheduled load tests | 2,260/test | 45,200 |
| | 6 estimated load retests | 2,260/test | 13,560 |
| (c) Engineering Evaluation | | | |
| Analysis and Report | L.S. | Each | 4,600 |
| | | SUB-TOTAL | $ 87,480 |
| **II. SVERDRUP & PARCEL AND ASSOCIATES, Inc.** | | | |
| Administrator Fee | L.S. | Each | 8,750 |
| | | TOTAL | $ 96,230 |

Items (a) and (b) are variable quantity items. Quantity paid for will be the actual quantity of work performed.

Items (c) and Administrator Fees are fixed quantity items, paid for on a lump sum basis.

RECEIVED
AUG 20 1973
BRIDGE DESIGN

EXHIBIT A

Consultant
Agreement
9559
Extension
feasibility study

# SUPPLEMENTAL AGREEMENT

THIS SUPPLEMENTAL AGREEMENT, made and entered into, by and between the STATE OF OREGON, by and through its Department of Transportation, Highway Division, hereinafter called "State" and the firm of Sverdrup & Parcel and Associates, Inc., a corporation of the State of Missouri, hereinafter called "Consultant".

## WITNESSETH

RECITALS:

1. WHEREAS, State and Consultant entered into an agreement on September 30, 1970, employing Consultant to do the preliminary type studies, final design, and other work in connection with the construction of a bridge across the Columbia River in the vicinity of Portland, Oregon, and Vancouver, Washington (US Interstate Highway I-205); and State and Consultant entered into agreements for bike path studies in the form of a first letter amendment dated March 29, 1972, and a second letter amendment dated December 27, 1972.

2. WHEREAS, State and Consultant now desire to supplement said agreement of September 30, 1970, and letter amendments to said agreement to provide for certain changes in obligations of both State and Consultant as hereinafter set forth;

NOW, THEREFORE, the premises being in general as stated in the foregoing RECITALS, it is mutually agreed upon by and between the parties hereto as follows:

1. That the terms and conditions of that said agreement entered into by State and Consultant on September 30, 1970, and first letter amendment on March 29, 1972, and second letter amendment on December 27, 1972, by reference hereof are made a part of this supplemental agreement and are to remain in force and effect except as herein modified.

2. Consultant agrees to make a preliminary study of a southerly extension to the Columbia River Bridge from the currently planned terminus near Station 85+00 to a connection with the airport interchange near Station 126+00 and to provide various reports relative to the study in accordance with the Consultant's proposal of July 6, 1973, marked Exhibit "A", attached hereto and by this reference made a part hereof. A plan marked Exhibit "B" showing the original length of the bridge and the extension is attached hereto and by this reference made a part hereof.

3. Consultant agrees to certain modifications and additions to Exhibit "A" outlined as follows:

   a. The combination embankment and structure alternate configuration is further defined as a fill section with a structure over the small boat channel in the existing south channel. Consideration shall be given to the feasibility of a hydraulic fill under the embankment alternate.

   b. The hydraulic effects of channel dredging for material shall be considered.

c. The detrimental effects of the dredging and that of the construction of the highway fill shall be considered.

d. The hydraulic study shall include an analysis of the consequences of any attempt to alter the present division of flow between the north and south channels.

e. Certain data developed in the normal course of the studies described herein shall be compiled and submitted as a separate report entitled, "Environmental Impact Data". Items to be included in this report for each of the alternate configurations are as follows:

   (1) The flooding effect of the construction on Government Island.
   (2) Backwater effects on the flood plain.
   (3) Scouring effects, both short-term and long-term.
   (4) Sedimentation, both short-term and long-term.
   (5) Navigational effects.
   (6) Velocities after construction.
   (7) The effects of reregulation at Bonneville Dam on the construction site.
   (8) A history of recent changes in the soundings of the south channel.
   (9) Present flow characteristics at all stages.
   (10) Chemical changes in the water as a result of the construction.

(11) Temperature changes of the water as a result of the construction.

(12) Pollution factors during construction.

(13) Turbidity factors during construction.

4. Compensation to Consultant for work required under this supplemental agreement is shown as a part of Exhibit "A". A contingency and overrun allowance of $10,440 (5%) is authorized which brings the limiting amount under this supplemental agreement, without renegotiation, to $219,200.

5. The Environmental Impact Data, as outlined in Paragraph 3e, will be submitted to the State on or before October 19, 1973. The entire study will be completed and all reports submitted to the State on or before December 21, 1973.

6. The effective date of this agreement is July 17, 1973.

IN WITNESS WHEREOF, the parties hereto have set their hands and affixed their seals as of the day and year first above written.

This agreement was approved by the Oregon Transportation Commission on 11-21, 1973, at which time F.B. Klaboe, Administrator and State Highway Engineer, was authorized and directed to sign said agreement for and on behalf of the Commission. Said authority is set forth in Volume 1, Page ____, Minute Book of the Oregon Transportation Commission.

STATE OF OREGON, BY AND THROUGH
ITS DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION

F B Klaboe
Administrator and State Highway Engineer

APPROVED:

Assistant State Highway Engineer

DEPARTMENT OF GENERAL SERVICES

By
Leander Quiring, Director

APPROVED AS TO FORM:

Assistant Attorney General
and Counsel

SVERDRUP & PARCEL AND ASSOCIATES, INC.

By

Assistant Vice President

SVERDRU & PARCEL AND ASSOCIATES c.
*Consulting Engineers*
805 - 106TH AVENUE N. E.
P. O. BOX 369
BELLEVUE, WASHINGTON 98004

July 6, 1973

Oregon State Highway Division
Highway Building
Salem, Oregon 97310

**Attention:** Mr. Walter J. Hart
Bridge Engineer

Gentlemen:

**Subject:** I-205 Columbia River Bridge, Bridge 9555
Engineering Proposal
Study of Bridge Extension

We are pleased to submit this proposal for services to be performed for the subject project as requested by your letter dated June 14, 1973. The services include a preliminary study and report for a southerly extension to the Columbia River Bridge from the currently planned terminus near Station 85+00 to a connection with the airport interchange near Station 126+00.

This proposal supersedes our proposal dated May 22, 1973, and includes studies of the extension both on structure and on a combination of structure and earth embankment. The studies will be based on present topography in the south channel with consideration given to the possible future fill for a new airport runway.

The studies will include, but not be restricted to, the following:

1. Develop a configuration with the extension all on structure.
2. Develop configurations carrying the extension on a combination of embankment and structure.
3. Perform such foundation investigation as required to establish design criteria. The minimum exploration will be five borings on Government Island, nine borings in the south channel, three borings on the south river bank, appropriate sampling and testing. We will employ the firm of Cornell, Howland, Hayes & Merryfield for this investigation.

EXHIBIT A

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4. Perform such hydraulic studies as are necessary to establish the following objectives with the various combinations of structure and embankment:

   (a) To maintain nearly the same division of flow between the north and south channels as presently exists at all possible stages and discharges.

   (b) Provide for equivalent sediment transportation capacity so as not to cause scour or deposition detrimental to the structure or river banks.

   (c) Provide the same flood-passing ability as presently exists without excessive backwater effects.

   We will employ the firm of Bauer Engineering, Inc., for this analysis.

5. Furnish twenty-five copies of written reports which will include, but not be restricted to, the following:

   (a) Evaluation of alternative layouts for the extension.

   (b) Construction costs of alternative layouts.

   (c) Conceptual drawings of alternative layouts.

   (d) A design and construction timetable.

   (e) Hydraulic studies.

   (f) Foundation investigation.

We propose to provide those services required under Item I., Preliminary Report Complete, of the attached Fee Schedule, for a lump sum fee of $78,450.00 and to provide those services required under Item II B, Administrator Fee for Foundation Investigation, for a lump sum fee of $4,000.00. Items shown in II A of the attached schedule, all in connection with the

EXHIBIT A

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Foundation Investigation, are unit prices and lump sum amounts as quoted by Cornell, Howland, Hayes & Merryfield. The total amount shown ~~on the attached schedule for Items 2(b) through 2(i)~~ is $97,950.00 based on a total of 3,100 lineal feet of drilling.

For the Hydraulic Study, we propose to provide our services ~~required under Item 3(a), Administrator Fee~~, for a lump sum fee of $1,400.00. ~~Item 3(b) of the attached schedule, for the Hydraulic Study, is the estimated total fee of $27,000.00 as quoted on a unit price basis by Bauer Engineering. A copy of the Bauer Engineering proposal is attached.~~ Bauer Engineering will make the study for cost (estimated at $20,660) plus a fixed fee ($6,300).

Two sheets of fee determination for Item I are also attached showing estimated manhours, salary rates, direct costs, overhead, profit, and cost of consultants to be employed by our firm. In addition to the firms employed for the foundation investigation and the hydraulic studies, we will employ the firm of Broome, Selig, & Oringdulph for architectural services, and Ben C. Gerwick, Jr., as consultant in connection with construction aspects of the studies.

This proposal is based on the following assumptions:

1. The studies will be based on existing topography with consideration given to the possible future airport fill in the south channel and possible future dredging in the north channel.
2. Pier shapes and superstructure concepts are to remain as currently proposed except the recommended method of superstructure construction. Precast, segmental, cantilever construction may be changed in some areas either to cast-in-place construction supported on falsework, or to cast-in-place, segmental, cantilever construction.
3. All profiles and horizontal control are to be furnished by the State.
4. The State will obtain all rights of way required for the project.
5. The State will obtain all utility permits, U. S. Department of Transportation permits and other agreements necessary for the project.

EXHIBIT A

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6. The State will perform preliminary field surveys, establish horizontal and vertical alignment and will furnish to Consultant the following: A reproducible map, showing horizontal controls, restricted areas, roadway widths and topography for the project; profiles showing vertical controls and alignment; a utilities map, and any other data in State's files that might be applicable to Consultant's work.

7. The State will establish centerline monuments along the centerline of the bridge, specific monuments on the south bank of the river and at least one additional monument on the south bank to provide control points adequate to permit the foundation exploration subcontractor to properly position drill barges as he deems necessary.

It is anticipated that this study and report will be completed within five months after receipt of notice to proceed. We are available to discuss the proposal at your convenience.

Very truly yours,

SVERDRUP & PARCEL AND ASSOCIATES, Inc.

R. D. Bane

R. D. Bane, P. E.
Assistant Vice President

Attachments

EXHIBIT A

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## PRELIMINARY STUDY OF BRIDGE EXTENSION

## FEE SCHEDULE

| Item | Unit & Quantity | Unit Price | Amount | |
|---|---|---|---|---|
| I. Sverdrup & Parcel and Associates, Inc. Preliminary Report, Complete | L.S. | - | | $ 78,4 |
| II. Foundation Investigation | | | | |
| A. CH2M/Hill | | | | |
| 1. Foundation Report | L.S. | - | $ 3,500 | |
| 2. Mobilization and Demob. | L.S. | - | 16,500 | |
| 3. Land Drilling | 1,400 L.Ft. | 19.00 | 26,600 | |
| 4. Water Drilling | 1,700 L.Ft. | 23.50 | 39,950 | |
| 5. Split Tube Sampling | 550 Only | 6.00 | 3,300 | |
| 6. Analysis of Split Tube Samples | 50 Only | 60.00 | 3,000 | |
| 7. Undisturbed Samples | 40 Only | 15.00 | 600 | |
| 8. Analysis of Undisturbed Samples | L.S. | - | 4,500 | |
| Subtotal - Foundation Investigation | | | $97,950 | |
| B. Sverdrup & Parcel and Associates, Inc. | | | | |
| Administrator Fee | L.S. | - | 4,000 | |
| **Total - Foundation Investigation** | | | | $101,950 |
| III. Hydraulic Study | | | | |
| A. Bauer Engineering, Inc. | | | | |
| 1. Study and Report | Reim. | - | $20,660 | |
| 2. Fixed Fee | L.S. | - | 6,300 | |
| Subtotal - Hydraulic Study | | | $26,960 | |
| B. Sverdrup & Parcel and Associates, Inc. | | | | |
| Administrator Fee | | | 1,400 | |
| Total - Hydraulic Study | | | | $ 28,360 |
| GRAND TOTAL | | | | $208,760 |

Items I, II.A.1, II.A.2, II.A.8, III.A.2, II.B., and III.B. are fixed quantity items, paid for on a lump sum basis.

Items II.A.3, II.A.4, II.A.5, II.A.6, II.A.7, and III.A.1 are variable quantity [illegible]ems. Quantity paid for will be the actual quantity of work performed.

EXHIBIT A

# FEE DETERMINATION

## ITEM 1, PRELIMINARY REPORT COMPLETE
SVERDRUP & PARCEL AND ASSOCIATES, INC.
Prime Consultant

| Classification | | Man Months 1 | 2 | 3 | 4 | 5 | Total | Ave. Monthly Rate | Base Salary |
|---|---|---|---|---|---|---|---|---|---|
| P-8 | Project Manager | ½ | ½ | ½ | ½ | ½ | 2½ | $1,940 | $ 4,850 |
| P-6 | Project Engineer and Group Leaders | 1 | 1½ | 1 | 1 | 1 | 5½ | 1,630 | 8,960 |
| P-5 | Architects and Engineers | 1 | 1½ | 2½ | 2½ | 1 | 8½ | 1,380 | 11,730 |
| P-4 | Designers and Estimators | | | | 1 | 1 | 2 | 1,225 | 2,450 |
| P-1 | Draftsmen | | | 1 | 1 | ½ | 2½ | 860 | 2,150 |
| | Total | 2½ | 3½ | 5 | 6 | 4 | 21 | | $30,140 |

Total Manhours Required: 21 x 173-1/3 = 3,640

Total Base Salary Cost: $30,140

Average Hourly Rate: $8.28

EXHIBIT A

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## FEE DETERMINATION

### ITEM 1, PRELIMINARY REPORT COMPLETE
SVERDRUP & PARCEL AND ASSOCIATES, INC.
Prime Consultant

**Salaries and Overhead**

| | |
|---|---|
| Base Salary Cost 3,640 MH x 8.28/Hr. | $ 30,140 |
| Salary Related Expenses 22.5% x $30,140 | 6,780 |
| Productive Salary Cost | 36,920 |
| Overhead 60% x $36,920 | 22,150 |
| Total Salaries and Overhead | $ 59,070 |

**Direct Costs**

| | |
|---|---|
| Computer Time | $ 2,000 |
| Travel and Subsistence | 2,000 |
| Report Printing, Telephone | 2,100 |
| Total Direct Costs | $ 6,100 |

| | |
|---|---|
| **Profit** | 9,780 |
| Total Above | $ 74,950 |

**Subcontracts**

| | |
|---|---|
| Architectural Services | $ 1,500 |
| Construction Aspects of Design | 2,000 |
| Total Subcontracts | $ 3,500 |
| Total Lump Sum - Item 1 | $ 78,450 |

EXHIBIT A

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# FEE DETERMINATION

## SVERDRUP & PARCEL AND ASSOCIATES, INC.
Prime Consultant

### Estimated Overhead Cost

### For the Year 1973

| | Percent of Productive Salary Cost[1] |
|---|---|
| Non-productive Salaries of Productive Employees | 15.8% |
| Executive, Administrative and Accounting Salaries | 18.7 |
| Non-productive Outside Consultants | 1.1 |
| Advertising - Help Wanted | .7 |
| Automobile Expense - Net | .9 |
| Blueprints, Maps and Photos | .9 |
| Books, Magazines and Subscription | .1 |
| Pension Plan Cost Applicable to Non-productive Salaries | 1.8 |
| Depreciation | .5 |
| Dues - Professional Societies and Registration | .2 |
| Equipment Rental | .9 |
| Equipment Maintenance | .1 |
| Insurance | 1.6 |
| Legal & Auditing | .4 |
| Miscellaneous | 1.2 |
| Postage and Express | .6 |
| Rent and Building Operations | 7.0 |
| Scholarship and Educational | .2 |
| Supplies | 1.6 |
| Taxes - Other than Federal Income | 3.6 |
| Telephone - Telegraph | 1.6 |
| Travel - Non-productive | 1.9 |
| Relocation Expense - Employees | .4 |
| Printing - Net of Amount Charged Productive | (1.8) |
| Overhead Cost - Net of Unallowable Items ASPR | 60.0% |

---

[1] Productive Salary Cost being Productive Salaries plus Payroll Burden

EXHIBIT A

# FEE DETERMINATION

SVERDRUP & PARCEL AND ASSOCIATES, INC.,
Prime Consultant

SALARY RELATED EXPENSE RATE

For the Year 1973

| | |
|---|---|
| Annual Leave | 6.2% |
| Sick Leave | 1.8 |
| Temporary Disability | .1 |
| Holiday | 2.3 |
| Standard Christmas Bonus | 1.3 |
| Pension Plan Cost | 4.0 |
| Workmen's Compensation and General Liability Insurance | .6 |
| Payroll Taxes | 6.2 |
| TOTAL | 22.5% |

Rate derived by dividing total Payroll Overhead by Productive Salaries.

EXHIBIT A

# FEE DETERMINATION

SVERDRUP & PARCEL AND ASSOCIATES, INC.
Prime Consultant

## Administrator Fees for Subconsultant Work

These Administrator Fees cover the prime consultant's estimated costs and overhead expenses involved in the handling of the subcontracts for Foundation Investigation and Hydraulic Study, respectively. Included in these expenses are the costs of bookkeeping, directing, and controlling the work. The fees are equal to approximately 5 percent of the subcontract amounts. This includes no allowance for profit and is substantially less than the normal handling charge for subcontracts.

EXHIBIT A

# FEE DETERMINATION

## $CH_2M$/Hill, Subconsultant

Unit prices for foundation investigation items are less than or equal to those already approved on page 16 of the original agreement dated September 30, 1970.

Fees for lump sum items have been justified.

EXHIBIT A

## FEE DETERMINATION

BAUER ENGINEERING, INC., Subconsultant

**Direct Payroll Cost:**

| Position | Hours | Rate/Hr. | |
|---|---|---|---|
| Principal | 80 | $21.63 | $1,730.00 |
| Project Mgr. | 240 | 9.50 | 2,280.00 |
| Hyd. Eng. | 120 | 7.50 | 900.00 |
| Soil Eng. | 80 | 8.25 | 660.00 |
| Engineer | 160 | 6.75 | 1,080.00 |
| Draftsman | 240 | 5.60 | 1,344.00 |
| Graphic Art | 40 | 6.25 | 250.00 |
| Direct Payroll Cost | | | $8,244.00 |

**Salary Related Expenses and Overhead:**

| | |
|---|---|
| Salary Related Expenses 33% x $8,244 | $2,720.52 |
| Overhead 69% x $8,244 | 5,688.36 |
| | $8,408.88 |

**Direct Costs:**

| | |
|---|---|
| Travel Expenses | $2,250.00 |
| Computer Cost | 500.00 |
| Printing Cost | 750.00 |
| Maps, Supplies, Miscellaneous | 500.00 |
| | $4,000.00 |

| | | |
|---|---|---|
| TOTAL ESTIMATED COST | $20,652.88 | ($20,660) |
| FIXED FEE | | $ 6,300 |
| GRAND TOTAL | | $26,960 |

EXHIBIT A

# FEE DETERMINATION

## BAUER ENGINEERING, INC., Subconsultant

### Estimated Overhead Cost

### For the Year 1973

| Salary Related Expenses | | % of Direct Salary Costs |
|---|---|---|
| Overtime Premium | | 1 |
| Vacation | | 5 |
| Holiday | | 4 |
| Sick Leave | | 3 |
| Group Health & Life Insurance | | 3 |
| Payroll Taxes | | 8 |
| Bonus | | 9 |
| | Subtotal | 33 |

| Overhead Expenses | | |
|---|---|---|
| Nonchargeable Engineering Time | | 2 |
| Executive, Secretarial, Accounting and Printing | | 15 |
| Promotion Time & Expense | | 17 |
| Printing & Office Supplies | | 1 |
| Telephone & Postage | | 4 |
| Computer Time Sharing | | 3 |
| Rent-Office Space, Furniture | | 14 |
| Conventions, Meetings & Travel | | 1 |
| Memberships, Registrations & Dues | | 1 |
| Liability and Other Insurance | | 1 |
| Taxes Other Than Federal Income Tax | | 1 |
| Legal and Audit | | 3 |
| Depreciation | | 3 |
| Interest | | 1 |
| Miscellaneous | | 2 |
| | Subtotal | 69 |
| | TOTAL | 102 |

EXHIBIT A

5C.

Redesign

## SUPPLEMENTAL AGREEMENT

THIS SUPPLEMENTAL AGREEMENT, made and entered into, by and between the STATE OF OREGON, by and through its Department of Transportation, Highway Division, hereinafter called "State" and the firm of Sverdrup & Parcel and Associates, Inc., a corporation of the State of Missouri, hereinafter called "Consultant".

## WITNESSETH

RECITALS:

1. WHEREAS, State and Consultant entered into an agreement on September 30, 1970, employing Consultant to do the preliminary type studies, final design, and other work in connection with the construction of a bridge across the Columbia River in the vicinity of Portland, Oregon, and Vancouver, Washington (US I-205); and State and Consultant entered into agreements for bike path studies in the form of a first letter amendment dated March 29, 1972 and a second letter amendment dated December 27, 1972; and State and Consultant entered into supplemental agreements for a program of test piles and plate load tests dated October 24, 1973, and for a feasibility study for a southerly extension to the original length of the bridge dated November 21, 1973.

2. WHEREAS, State and Consultant now desire to supplement said agreement of September 30, 1970, letter amendments to said agreement, and supplemental agreements to provide for certain changes in obligations of both State and Consultant as hereinafter set forth;

NOW, THEREFORE, the premises being in general as stated in the foregoing RECITALS, it is mutually agreed upon by and between the parties hereto as follows:

1. That the terms and conditions of that said agreement entered into by State and Consultant on September 30, 1970, and first letter amendment on March 29, 1972 and second letter amendment on December 27, 1972, and supplemental agreements dated October 24, 1973 and November 21, 1973, by reference hereof are made a part of this supplemental agreement and are to remain in force and effect except as herein modified.

2. The Consultant agrees to redesign the original length of bridge, as specified in the agreement dated September 30, 1970, to accommodate a bike path. This redesign shall be in accordance with the Consultant's proposal of May 15, 1974 marked Exhibit A and in accord with a bike path cross section marked Exhibit B, both exhibits attached hereto and by this reference made a part hereof.

3. The Consultant agrees to design a bike path to be attached to the original length bridge in accordance with the above Exhibits A and B.

4. The Consultant agrees to redesign the original length of bridge, as outlined in the agreement of September 30, 1970, to accommodate the proposed approximate 4,000-foot extension at the southerly end in accordance with Exhibit A.

5. The Consultant agrees to realign the columns for piers 4 through 7 to form a straight line arrangement at each pier in accordance with Exhibit A.

6. The Consultant agrees to prepare the design, plans, estimates, specifications and other materials in such form that performance of construction

may be accomplished under two separate contracts. One contract shall be for the Washington shore work (approximately spans 1 through 10) and the other shall include the remainder of the original length structure. Contract materials for the Washington shore contract shall be in accord with Washington Department of Highways standards. Contract materials for the remainder of the structure shall be in accord with Oregon State Highway Division standards. The work shall be in accordance with Exhibit A.

7. Due to delays beyond the Consultant's control the time required to complete the work covered by the agreement dated September 30, 1970, will require a longer time to complete than originally contemplated. Such delays cause escalation of the cost of completing the work. The State agrees to increase the compensation to the Consultant for that part of the work done after August 31, 1973. Such increase shall be in accordance with Exhibit A.

8. The agreed hourly rate schedule shown in Exhibit H of the agreement dated September 30, 1970, shall be revised as indicated in Item 7 (Exhibit H) of the above referenced Exhibit A in order to allow compensation to the Consultant for escalated costs of checking shop drawings as occasioned by delays beyond his control.

9. Paragraph IV B, Item 4(a) of the agreement dated September 30, 1970, is revised to increase the total estimated quantity by 200 hours and to increase the total amount by $46,300. The revised total estimated quantity shall be 9,200 hours and the revised total amount shall be $207,900 in accordance with Item 7, paragraph IV B, Item 4(a) of Exhibit A of this supplement. The additional 200 hours reflect the additional checking of shop drawings required by the addition of a bike path to the bridge. The additional $46,300 reflect the cost of the

additional 200 hours of checking time plus the escalated costs of checking all shop and construction drawings. The escalated costs are a result of delays not caused by the Consultant. The basis of payment shall remain as shown in the agreement dated September 30, 1970.

10. Paragraph IV B, Item 4(b) of the agreement dated September 30, 1970, is revised to increase the direct costs by $7,700. The revised total amount shall be $52,100 in accordance with Item 7, paragraph IV B, Item 4(b) of Exhibit A attached to this supplement. This revision is made to reflect the escalation of direct costs in connection with checking shop and construction drawings occasioned by delays not caused by the Consultant. The basis of payment shall remain as shown in the agreement dated September 30, 1970.

11. Compensation to the Consultant for all work required under Items 2 through 7 above shall not exceed $560,000. Such amount includes a $27,880 contingency fund for possible overruns. The use of the contingency fund in whole or in part must have prior approval of the State. The total payment for each of these items is shown in Items 1 through 6 of Exhibit A.

12. Compensation to the Consultant for the additional work covered by Items 9 and 10 above shall not exceed $57,000. Such amount includes a $3,000 contingency fund for possible overruns. The use of the contingency fund in whole or in part must have prior approval of the State.

13. Paragraph IV B 3 on Page 19 of the original agreement dated September 30, 1970 as regards retainage is revised as follows:

The retained amount for that part of the final design phase of the work completed as of August 31, 1973 is reduced to 3% and the balance of that retained amount is payable to Consultant on the effective date of this agreement. The retained amount for the remaining final design work is in accordance with the original agreement dated September 30, 1970.

Upon satisfactory completion and approval of all phases of work in connection with the bike path studies (Letter Amendments 1 and 2), the feasibility study for the approximately 4,000-foot bridge extension (Supplemental Agreement dated November 21, 1973) and the test pile and plate load test program (Supplemental Agreement dated October 24, 1973), 100% of the retainage for these items will be released to Consultant. Release of said retainage will be made for each item individually when the item is satisfactorily completed and approved.

14. Paragraph III 3 of the agreement dated September 30, 1970, is revised by adding the following: The Consultant agrees to furnish to the State copies of the FORTRAN source card deck for certain computer programs developed for the design of the bridge. These copies shall become the property of State without restrictions or limitations on the use thereof. These are the programs for the segmental, post-tensioned section of the bridge which is to be constructed by the cantilever method. A copy of the existing program documentation for each program will also be furnished including input instructions and forms, design assumption descriptions, output description, a sample run, and the program listing. These programs will be furnished to the State no later than October 15, 1974. The Consultant will receive no additional compensation for furnishing said programs except that the State will pay for the actual cost of duplicating the FORTRAN source decks. The Consultant will not be held liable for any undetected errors in the programs as furnished.

15. Paragraph I B 8 of the original agreement dated September 30, 1970 is deleted and the following is substituted:

Items (a), (b), (c), (d) and (e), paragraph I B 7 of the original agreement, which are required for the Washington shore construction, shall be completed and delivered to the State by December 31, 1974. Similar documents necessary for the remainder of the construction will be furnished to the State within thirteen months after the Consultant has been notified of the type of southerly extension approved for the structure.

16. Effective date of this supplemental agreement is August 1, 1973.

IN WITNESS WHEREOF, the parties hereto have set their hands and affixed their seals as of the day and year hereinafter set out.

This Agreement was approved by the Oregon Transportation Commission on October 30, 1974, at which time the Administrator and State Highway Engineer was authorized and directed to sign said Agreement for and on behalf of the Commission. Said authority is set forth in Volume 2, Page ____, Minute Book of the Oregon Transportation Commission.

APPROVED:

Assistant Oregon State Highway Engineer

APPROVED AS TO FORM:

Assistant Oregon Attorney General and Counsel

APPROVED AS TO FORM:

Assistant Washington Attorney General

STATE OF OREGON, BY AND THROUGH
ITS DEPARTMENT OF TRANSPORTATION,
HIGHWAY DIVISION

Administrator and
State Highway Engineer

STATE OF WASHINGTON
WASHINGTON STATE HIGHWAY COMMISSION

By: ______________________
George H. Andrews, Director
Washington State Highway Department

Consultant
SVERDRUP & PARCEL AND ASSOCIATES, INC.

By: ______________________
Vice President

APPROVED
DEPARTMENT OF GENERAL SERVICES
DIRECTOR

9555

SVERDRUP & PARCEL AND ASSOCIATES, Inc.
*Consulting Engineers*
505 - 106TH AVENUE N. E.
P. O. BOX 369
BELLEVUE, WASHINGTON 98004

May 15, 1974

Oregon State Highway Division
Highway Building
Salem, Oregon 97310

Attention: Mr. Walter J. Hart
Bridge Engineer

Gentlemen:

Subject: I-205 Columbia River Bridge
Bridge 9555
Sta. 8+40 to Sta. 85+00
Proposal for Engineering Services

We are pleased to submit this proposal for consulting services to add a pedestrian-bicycle path to the subject bridge.

This proposal includes the design of the bike path with an access ramp only at the north end, redesign of the bridge to accommodate the bike path, realignment of the columns for Piers 4 through 7, and preparing an additional set of contract documents for construction on the Washington shore. Also included in this proposal is redesign of the bridge to accommodate a proposed 4,070-foot southerly extension. Redesign due to the extension is included because it will be done simultaneously with redesign due to the bike path. Design of the southerly extension and bike path access ramp is not included.

Work under our agreement dated September 30, 1970, has been delayed beyond the specified completion time of 19 months (April 27, 1973). We have therefore included in this proposal an amount to cover the escalation in our costs. August 31, 1973, has been selected as the date beyond which escalated costs are required.

The estimated amounts for checking shop drawings must also be increased. Additional manhours will be required because of the bike path and the manhour rates must be increased. We have enclosed a memorandum from our comptroller to document our Salary Related Expense of 30.0 percent and Overhead of 57.0 percent.

The following sheets provide a detailed breakdown of our fees for the several items.

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EXHIBIT A

NOTED
P.H. OAKLEY

## 1. Design Pedestrian-Bicycle Path

This item comprises design of the bike path for the original bridge length of 7,660 feet and includes the design of an access ramp at the north end of the bike path.

| | | |
|---|---|---|
| Manhours required | | 3,940 |
| Average Salary Rate | | $ 8.40 |
| Base Productive Salaries | | 33,100 |
| Salary-Related Expense @ 24.0% | | 7,940 |
| Total Salary Cost | | $ 41,040 |
| Overhead @ 57.0% | | 23,390 |
| Direct Cost | | |
| Computer Time | $4,570 | |
| Travel and Subsistence | 340 | |
| Reproductions | 490 | |
| Total Direct Cost | | 5,400 |
| Total Cost | | $ 69,830 |
| Profit | | 10,470 |
| Fee | | $ 80,300 |

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MAY 16 1974
BRIDGE DIVISION

EXHIBIT A

## 2. Redesign Bridge to Accommodate Bike Path

This item is that portion of the bridge redesign which is attributable to the addition of the bike path. It is assumed that this redesign will be done simultaneously with redesign due to the proposed southerly bridge extension.

| | | |
|---|---|---|
| Man-hours required | | 11,070 |
| Average Salary Rate | | $ 8.40 |
| Base Productive Salaries | | 92,990 |
| Salary Related Expense @ 24.0% | | 22,320 |
| Total Salary Cost | | $115,310 |
| Overhead @ 57.0% | | 65,730 |
| Direct Cost | | |
| Computer Time | $10,120 | |
| Travel and Subsistence | 610 | |
| Reproductions | 1,070 | |
| Total Direct Cost | | 11,800 |
| Total Cost | | $192,840 |
| Profit | | 28,930 |
| Fee | | $221,770 |

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EXHIBIT A

### 3. Redesign Bridge to Accommodate Extension

This item is that portion of the bridge redesign which is attributable to the proposed 4,070-foot southerly extension, but design of the extension is not included. It is assumed that this redesign will be done simultaneously with redesign due to the bike path.

| | | |
|---|---|---|
| Manhours required | | 7,250 |
| Average Salary Rate | | $ 8.40 |
| Base Productive Salaries | | 60,900 |
| Salary Related Expense @ 24.0% | | 14,620 |
| Total Salary Cost | | $ 75,520 |
| Overhead @ 57.0% | | 43,050 |
| Direct Cost | | |
| Computer Time | $3,620 | |
| Travel and Subsistence | 250 | |
| Reproductions | 340 | |
| Total Direct Cost | | 4,210 |
| Total Cost | | $122,780 |
| Profit | | 18,420 |
| Fee | | $141,200 |

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MAY 1[illegible] 1974
BRIDGE DIVISION

EXHIBIT A

4. Change Column Alignment of Piers 4 through 7

This item includes the bridge redesign to change column alignment to parallel the Lewis and Clark Highway (SR-14) on the Washington shore.

| | | |
|---|---|---|
| Manhours required | | 400 |
| Average Salary Rate | | $ 6.50 |
| Base Productive Salaries | | 2,600 |
| Salary Related Expense @ 24.0% | | 620 |
| Total Salary Cost | | $ 3,220 |
| Overhead @ 57.0% | | 1,840 |
| Direct Cost | | |
| Computer Time | $100 | |
| Total Direct Cost | | 100 |
| Total Cost | | $ 5,160 |
| Profit | | 770 |
| Fee | | $ 5,930 |

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JUN 27 1974
BRIDGE DIVISION

EXHIBIT A

## 5. Prepare Additional Set of Contract Documents

This item comprises the preparation of an additional set of contract documents in accordance with specifications of the State of Washington. The additional documents provide for a separate construction contract for spans on the Washington shore.

| | | |
|---|---|---|
| Manhours required | | 200 |
| Average Salary Rate | | $ 8.40 |
| Base Productive Salaries | | 1,680 |
| Salary Related Expense @ 24.0% | | 400 |
| Total Salary Cost | | $ 2,080 |
| Overhead @ 57.0% | | 1,180 |
| Direct Cost | | |
| Reproductions | $200 | |
| Total Direct Cost | | 200 |
| Total Cost | | $ 3,460 |
| Profit | | 520 |
| Fee | | $ 3,980 |

EXHIBIT A

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## 6. Escalated Cost of Uncompleted Design

This item provides for escalated costs due to delays beyond our control. Column A lists the cost to complete the design during the contemplated design period. Column B lists the cost of the same work under the terms of our original agreement.

| | | A. During Contemplated Design Period (Aug. 1973 - Apr. 1975) | | B. Under Original Agreement (Oct. 1971 - Aug. 1973) |
|---|---|---|---|---|
| Original Total Manhours | | -- | | 68,900 |
| 55.1% Completed to Aug. 31, 1973 | | -- | | 37,960 |
| Manhours Remaining | | 30,940 | | 30,940 |
| Avg. Salary Rate | | $ 8.40 | | $ 7.50 |
| Base Productive Salaries | | 259,900 | | 232,050 |
| Salary Related Expense | @ 24.0% = | 62,380 | @ 21.5% = | 49,890 |
| Total Salary Cost | | $322,280 | | $281,940 |
| Overhead | @ 57.0% = | 183,700 | @ 55.0% = | 155,070 |
| Direct Cost | | 62,410 | | 62,410 |
| Total Cost | | $568,390 | | $499,420 |
| Profit | | 82,130 | | 72,160 |
| Fee | | $650,520 | | $571,580 |
| Escalated Cost ($650,520 less $571,580) | | $ 78,940 | | |

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EXHIBIT A

### 7. Revised Cost to Check Shop Drawings

This item covers the increased manhours for checking bike path shop drawings and increased hourly rates because of escalation in our Salary Related Expense and Overhead Cost.

**EXHIBIT H** Agreed Hourly Rates

| Grade | Monthly Salary Min. | Monthly Salary Max. | Average Hourly Wage | Agreed Hourly Rate |
|---|---|---|---|---|
| T-1 | $ 280 | $ 415 | $ 2.00 | $ 4.85 |
| T-2 | 420 | 565 | 2.84 | 6.90 |
| T-3 | 570 | 745 | 3.79 | 9.20 |
| P-1 | 750 | 895 | 4.75 | 11.55 |
| P-2 | 900 | 1,045 | 5.61 | 13.65 |
| P-3 | 1,050 | 1,195 | 6.48 | 15.75 |
| P-4 | 1,200 | 1,355 | 7.37 | 17.90 |
| P-5 | 1,360 | 1,525 | 8.32 | 20.20 |
| P-6 | 1,530 | 1,695 | 9.30 | 22.60 |
| P-7 | 1,700 | 1,895 | 10.37 | 25.20 |
| P-8 | 1,900 | 2,095 | 11.52 | 28.00 |
| P-9 | 2,100 | 2,400 | 12.98 | 31.55 |

## PARAGRAPH IV. PAYMENT

### B. FINAL DESIGN

Fee Schedule

| Number | Item | Unit and Quantity | Unit Price | Amount |
|---|---|---|---|---|
| 4(a) | Check Drawings | 9,200 hrs. | See Exh. H | $207,900.00 |
| 4(b) | Direct Costs | All | At Actual Cost | $ 52,100.00 |

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BRIDGE DIVISION

We propose to furnish the additional services to accomplish Items 1 through 6 for the lump sum fee of $532,120 summarized as follows:

| | | |
|---|---|---|
| 1. | Design Pedestrian-Bicycle Path | $ 80,300 |
| 2. | Redesign Bridge to Accommodate Bike Path | 221,770 |
| 3. | Redesign Bridge to Accommodate Extension | 141,200 |
| 4. | Change Column Alignment of Piers 4 through 7 | 5,930 |
| 5. | Prepare Additional Set of Contract Documents | 3,980 |
| 6. | Escalated Cost of Uncompleted Design | 78,940 |
| | Total Lump Sum Fee | $532,120 |

We further propose that the contract limiting amount for checking shop drawings be increased from $206,000.00 to $260,000.00 as shown for Item 7.

Contract documents for construction of the spans on the Washington shore will be furnished before December 24, 1974. The time for submission of contract documents for the remaining spans will be established after approval of a scheme for extending the bridge.

Very truly yours,

SVERDRUP & PARCEL AND ASSOCIATES, Inc.

R. D. Bane

R. D. Bane, P. E.
Vice President

Enclosures

RECEIVED
JUN 2 1974
BRIDGE DIVISION

EXHIBIT A

May 13, 1974

MEMORANDUM

**TO:** R. D. Bane

**FROM:** W. F. Knapp

In our phone conversation you requested rates for Salary Related Expense and General Administrative Overhead for the year 1978. As explained to you at that time it is almost impossible to establish a firm rate for the year 1978 due to the many unknowns that enter into the rate computations.

Your attention is called to the fact that from time to time Congress accelerates the scheduled Social Security contributions of employees and employers as well as considering legislation in connection with benefits under Pension Plans. In addition to these items, the Company at various times updates certain areas of its Salary Related Expense (fringe benefits) such as vacation, sick leave and holiday policies and Company participation in Group Hospitalization and Medical Insurance Programs.

Due to the foregoing, it is suggested that a Salary Related Expense rate of between 30% and 35% can be foreseen.

In connection with the General Administrative Overhead rate a study of the past 3 years experience has resulted in an average General Administrative Overhead rate of 57% of Productive Salary Cost. It is expected that this rate will remain fairly constant in the future.

It is suggested that if it is necessary to quote percentages for 1978 that the following rates be used in estimating future cost, however, provisions should be made to allow an updating at a time when more realistic figures can be determined:

Salary Related Expense - 30% of Productive Salaries.

General Administrative Overhead - 57% of Productive Salary Cost.

If you have any questions in connection with the foregoing, please contact me.

W. F. Knapp

W. F. Knapp
Comptroller

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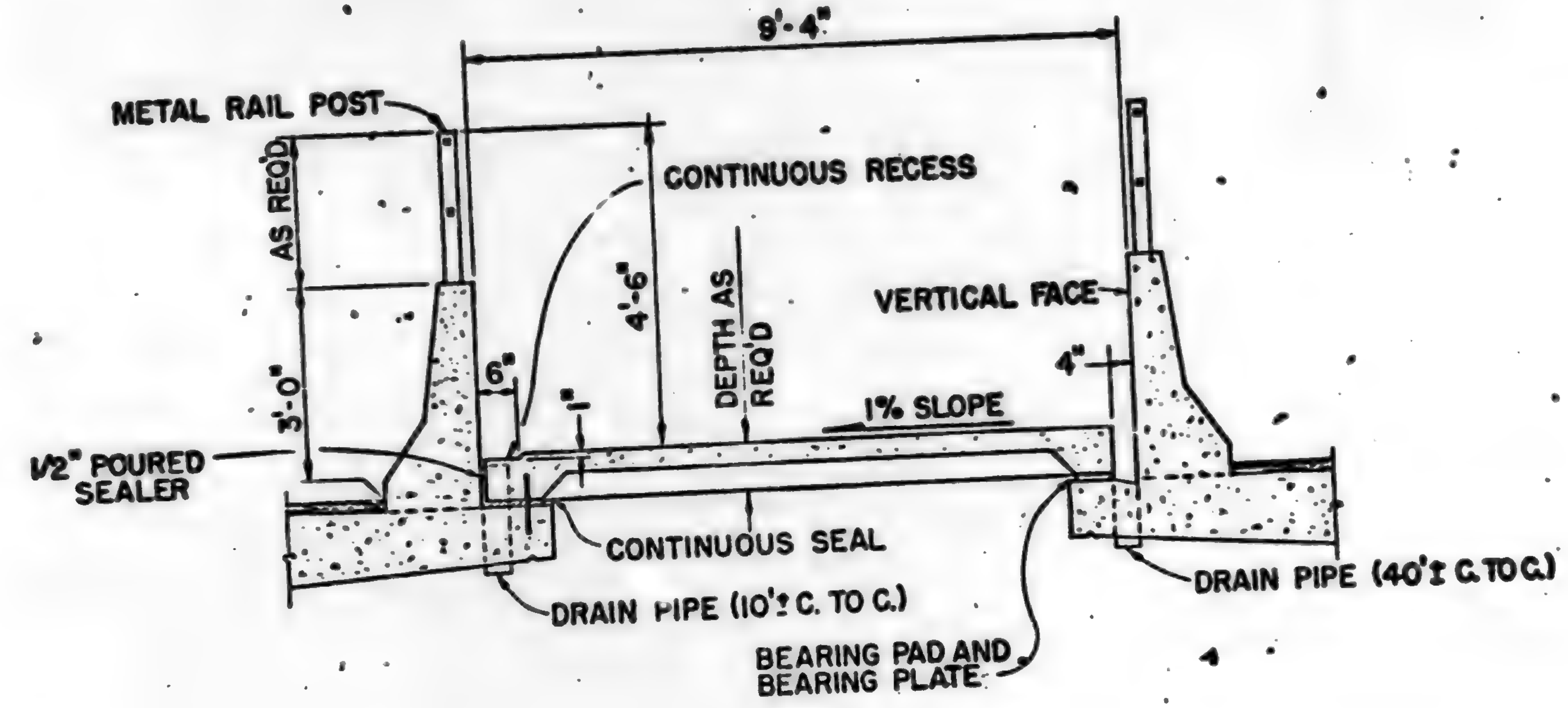
MAY 1[illegible] 1974
BRIDGE DIVISION

EXHIBIT A


9'-4"
METAL RAIL POST
AS REQ'D
CONTINUOUS RECESS
4'-6"
DEPTH AS REQ'D
VERTICAL FACE
4"
6"
1"
1% SLOPE
3'-0"
1/2" POURED SEALER
CONTINUOUS SEAL
DRAIN PIPE (10'± C. TO C.)
DRAIN PIPE (40'± C. TO C.)
BEARING PAD AND BEARING PLATE

PROPOSED
PEDESTRIAN BICYCLE PATH
I-205 CROSSING OF THE
COLUMBIA RIVER BRIDGE

EXHIBIT B

Columbia R. (I-205) Br.
Br. 9555
Consultant Design Agreement
Supplemental Foundation Investigation
(Part of Original Agreement)

## FUNDING

The attached sheets show status of funds for the original agreement as well as all supplements.

Sheet① shows status as of July 23, 1975, and does not include the $84,635 required for the supplemental foundation work as proposed herewith. It does show a supplemental foundation investigation as an unused item in the amount of $43,410 as set up in the original agreement.

Sheet② is an accounting of funds with $84,635 plugged-in for the proposed work. It is plugged-in as the supplemental foundation investigation under the original agreement, which is where we intend to pay for the work. The $84,635 plugged-in is $41,225 in excess of the $43,410 originally set up. This excess is shown as a negative surplus on Sheet② This excess is to be covered by surplus from other parts of the original agreement and by a part of the contingency built into the original agreement. The contingency is shown in the column headed, "Current Contingencies". This procedure will allow accomplishing the proposed supplemental foundation investigation within the limiting amount set up for the original agreement and leave a balance of $12,875.

STATUS OF PAYMENTS TO SVERDRU[illegible] PARCEL AND ASSOCIATES, INC.
FOR DESIGN WORK ON THE I-[illegible] COLUMBIA RIVER BRIDGE
AS OF July [illegible]

① See note sheet

| AGREEMENT | Date of Agreement | Estimated Amount A | Payments To Date B | Percent Complete C | To Complete D | Surplus E=A-(B+D) | Current Contingencies F=G-A | Limiting Amount G | Balance in Account E+F |
|---|---|---|---|---|---|---|---|---|---|
| 1. Original | 9-30-70 | | | | | | | | |
| a. Preliminary (Report & Found.Invest.) | | 274,970 | 274,970 | 100 | 0 | 0 | | | |
| b. Addtnl.Found.Drilling | 12-20-70 | 29,250 | 25,003 | 100 | 0 | 4,247 | | | |
| c. Suppl.Found.Invest.(Unused) | | 43,410 | 0 | - | 0 | 43,410 | | | |
| d. Final Design | | | | | | | | | |
| (1)Design Calc. + Cont.Plans | | 1,273,000 | 1,196,620 | 94 | 76,380 | 0 | | | |
| (2)Check Shop Dwgs. | | 206,000 | 0 | 0 | 206,000 | 0 | | | |
| e. First Letter Amend.Bike Study | 3-29-72 | 7,000 | 5,234 | 100 | 0 | 1,766 | | | |
| f. Second " " " " | 12-18-72 | 5,000 | 5,283 | 100 | 0 | - 283 | | | |
| TOTALS FOR ORIGINAL AGREEMENT | | 1,838,630 | 1,507,110 | — | 282,380 | 49,140 | 48,370 | 1,887,000 | 97,510 |
| 2. Supplemental for Test Piles | 10-24-73 | 96,230 | 92,148 | 100 | 0 | 4,082 | 4,800 | 101,030 | -4,800 |
| 3. Supplemental for Extension | 11-21-73 | | | | | | | | |
| a. Preliminary Report | | 78,450 | 78,450 | 100 | 0 | 0 | | | |
| b. Foundation Investigation | | 101,950 | 97,158 | 100 | 0 | 4,792 | | | |
| c. Hydraulic Study | | 28,360 | 26,760 | 100 | 0 | 1,600 | | | |
| TOTALS FOR EXTENSION | | 208,760 | 202,368 | 100 | 0 | 6,392 | 10,440 | 219,200 | 16,832 |
| 4. Supplement for Redesign,etc. | 8-1-73 | | | | | | | | |
| a. Design Bike Path | | 80,300 | 72,270 | 90 | 8,030 | 0 | | | |
| b. Redesign Br. to Carry Bike Path | | 221,770 | 190,720.20 | 86 | 31,047.80 | 0 | | | |
| c. Redesign Br. to accept Exten. | | 141,200 | 91,780 | 65 | 49,420 | 0 | | | |
| d. Realign Colums 4 - 7 | | 5,930 | 5,930 | 100 | 0 | 0 | | | |
| e. Addl. Plans & Specs. | | 3,980 | 3781 | 95 | 19.9 | 0 | | | |
| f. Escalated Cost-Orig. Agrmt. | | 132,940 | 65,677.81 | 37 | 64,2[illegible].20 | 0 | | | |
| TOTALS FOR REDESIGN | | 586,120 | 433,161 | — | 152,959 | | 30,880 | 617,000 | 30,880 |
| GRAND TOTALS | | 2,729,740 | 2,234,787 | | 435,339 | 59,614 | 94,490 | 2,824,230 | 154,104 |

333[illegible]

① See note sheet

STATUS OF PAYMENTS TO SVERDR[illegible] & PARCEL AND ASSOCIATES, INC.
FOR DESIGN WORK ON THE I-[illegible] COLUMBIA RIVER BRIDGE
AS OF July 22, 1975

(2) See note sheet

| AGREEMENT | Date of Agreement | Estimated Amount A | Payments To Date B | Percent Complete C | To Complete D | Surplus E=A-(B+D) | Current Contingencies F=G-A | Limiting Amount G | Balance in Account E+F |
|---|---|---|---|---|---|---|---|---|---|
| 1. Original | 9-30-70 | | | | | | | | |
| a. Preliminary (Report & Found. Invest.) | | 274,970 | 274,970 | 100 | 0 | 0 | | | |
| b. Addtnl. Found. Drilling | 12-20-70 | 29,250 | 25,003 | 100 | 0 | 4,247 | | | |
| c. Suppl. Found. Invest. | | 43,410 | 0 | - | 84,635 | (-) 41,225 | | | |
| d. Final Design | | | | | | | | | |
| (1) Design Calc. + Cont. Plans | | 1,273,000 | 1,196,620 | 94 | 76,380 | 0 | | | |
| (2) Check Shop Dwgs. | | 206,000 | 0 | 0 | 206,000 | 0 | | | |
| e. First Letter Amend. Bike Study | 3-29-72 | 7,000 | 5,234 | 100 | 0 | 1,766 | | | |
| f. Second " " " " | 12-18-72 | 5,000 | 5,283 | 100 | 0 | - 283 | | | |
| TOTALS FOR ORIGINAL AGREEMENT | | 1,838,630 | 1,507,110 | — | 338,380 | (-) 35,495 | 48,370 | 1,887,000 | 12,875 |
| 2. Supplemental for Test Piles | 10-24-73 | 96,230 | 92,148 | 100 | 0 | 4,082 | 4,800 | 101,030 | -4,800 |
| 3. Supplemental for Extension | 11-21-73 | | | | | | | | |
| a. Preliminary Report | | 78,450 | 78,450 | 100 | 0 | 0 | | | |
| b. Foundation Investigation | | 101,950 | 97,158 | 100 | 0 | 4,792 | | | |
| c. Hydraulic Study | | 28,360 | 26,760 | 100 | 0 | 1,600 | | | |
| TOTALS FOR EXTENSION | | 208,760 | 202,368 | 100 | 0 | 6,392 | 10,440 | 219,200 | 16,832 |
| 4. Supplement for Redesign, etc. | 8-1-73 | | | | | | | | |
| a. Design Bike Path | | 80,300 | 72,270 | 90 | 8,030 | 0 | | | |
| b. Redesign Br. to Carry Bike Path | | 221,770 | 190,720.20 | 86 | 31,047.80 | 0 | | | |
| c. Redesign Br. to accept Exten. | | 141,200 | 91,780 | 65 | 49,420 | 0 | | | |
| d. Realign Colums 4 - 7 | | 5,930 | 5,930 | 100 | 0 | 0 | | | |
| e. Addl. Plans & Specs. | | 3,980 | 3781 | 95 | 199 | 0 | | | |
| f. Escalated Cost-Orig. Agrmt. | | 132,940 | 68,677.8 | 87 | 64,262.2 | 0 | | | |
| TOTALS FOR REDESIGN | | 586,120 | 433,161 | — | 152,959 | | 30,880 | 617,000 | 30,880 |
| GRAND TOTALS | | 2,729,740 | 2,234,787 | | 435,339 | 59,614 | 94,490 | 2,824,230 | 69,469 |

388

(2) See note sheet

1979 Columbia R. Br. (N. Channel 8905
Superstruc.) I-205
Sverdrup & Parcel #3

C&A 3835 10-6-70

8905 Consult

9

1859

**OREGON STATE**
**HIGHWAY DIVISION**

HIGHWAY BUILDING • SALEM, OREGON • 97310

April 2, 1975

NOTED
E. S. HUNTER

Mr. Jack Allen
Sverdrup & Parcel and Associates, Inc.
P. O. Box 369
Bellevue, WA 98004

Dear Mr. Allen:

Your recent Progress Reports, under the heading Progress to Date, have carried the following statement: "Foundation concepts for the main spans have been submitted for approval." It is our understanding from our October 7, 1974 meeting and subsequent corres spondence that except for some doubt expressed by the State of Washington concerning the drainage system for the pier 12 cofferdam proposal, the construction concepts as presented are acceptable.

The question yet to be resolved is whether or not additional borings will be authorized at piers 12 and 13 in order to refine pier settlement calculations. Your request for additional borings has been forwarded to the Federal Highway Administration and the State of Washington.

You will be informed as soon as our decision on the additional work is made.

Very truly yours,

ORIGINAL SIGNED
WALTER J. HART

Walter J. Hart
Bridge Engineer

PMO:dh

cc E. S. Hunter

RECEIVED
APR 4 1975
Office of
Assistant State Highway Engineer

8905
Consult

Bridge 9555 9

1859

**OREGON STATE**
**HIGHWAY DIVISION**

HIGHWAY BUILDING • SALEM, OREGON • 97310

ROBERT W. STRAUB
GOVERNOR

F. B. KLABOE
Administrator of Highways

February 4, 1975

Mr. Jack Allen
Sverdrup & Parcel and Associates, Inc.
P. O. Box 369
Bellevue, WA 98004

NOTED
E. S. HUNTER

Dear Mr. Allen:

Columbia River (I-205) Bridge
Bridge 9555

A number of minor details relative to the design of the Columbia River crossing have been the subject of correspondence over the last several months. Our response to those items in question is given below:

Foundation Design Criteria

We had previously approved (October 28, 1974) a design bearing value for piers 1 through 10. By letter of December 18, 1974 you requested approval to increase the design bearing value for Abutment 1 and the bike path abutment from 1.5 tons per square foot to 2.0 tons per square foot for all loads except seismic and 2.3 tons per square foot for dead load earth pressure and earthquake. This proposed revision to the foundation design criteria is approved.

We have made an independent analysis of the pile driving stresses in the steel bearing pile proposed for piers 14 south. We concur with the use of a pile tip design stress at 12,000 psi. Pile tip reinforcement should be specified.

You had previously indicated an intention to request additional exploration in the area of piers 12 and 13. We are awaiting further word from you on this subject.

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FEB 5 1975
OFFICE OF
ASSISTANT STATE HIGHWAY ENGINEER

A DIVISION OF THE DEPARTMENT OF TRANSPORTATION

Future Emergency Call Box System

We concur with your recommendation of December 20, 1974 that the future emergency call boxes in the median area be mounted on the light poles. On the outside rail where there are no light poles, the call boxes can be supported on poles mounted on top of the parapet rail. The present design will only provide blank conduit stubbed out and capped to accommodate a possible future call box system.

Access Manholes

The access holes proposed in the bottom slab of Spans 1 through 3 are acceptable. Location of the access holes in the top slab was considered and abandoned in favor of the bottom slab location. An access hole in the top slab over a cell would fall on, or immediately adjacent to a wheel path which is an undesirable location. We are enclosing a print of the access hole details on which we have marked several suggested revisions.

Expansion Joints

The transflex expansion joints Model 400 A at Abutment 1, Model 650 at Span 4, and Model 1300 at Span 7 are acceptable. In our review of joint movement, we essentially agree with your figures for shrinkage, creep, and temperature. We do get slightly higher value with seismic. We do not consider a joint failure due to seismic effects to be significant in the total serviceability of the structure, therefore, we are not too concerned over the variation in movement due to this effect. We will want to review any alternates to the transflex expansion joints that may be proposed. We believe that installation of the expansion joints should be delayed for a minimum of 90 days, and longer if possible, to allow for creep and shrinkage movements.

Illumination Design

We would appreciate a status report on the illumination design for the structure. This should include the design criteria being used, pole type and height, and type of luminaire proposed.

If there are any questions relative to design criteria on details or correlation of your work with that on either the Oregon or Washington approach which remain unanswered, please advise.

Very truly yours,
ORIGINAL SIGNED
WALTER J. HART
Walter J. Hart
Bridge Engineer

WJH:dh

cc E. S. Hunter
R. N. Bothman
Glen Green
C. S. Gloyd
R. L. Carroll

8905 8

Consult.

Form FHWA 121 (Rev. 5-73)

UNITED STATES GOVERNMENT

# *Memorandum*

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
Box 300
Salem OR 97308

DATE: January 20, 1975

In reply refer to: 1041BR

SUBJECT: Oregon Project I-205-7(2)303
Columbia River Bridge
Sverdrup & Parcel Consultant Agreement Payment

FROM : G. L. Green, Division Engineer

NOTED
E. S. HUNTER

TO : Mr. F. B. Klaboe, Administrator & State Highway Engineer
Salem, Oregon
ATTN: Mr. E. S. Hunter, Asst State Highway Engineer

We approve 100% payment of billing Item VI as described in your October 24, 1973 Supplemental Agreement with Sverdrup & Parcel and Associates, and requested in Mr. Hart's letter of January 13, 1975. We find this phase of the work has been completed satisfactorily.

1-21-75
cc: Rubien
Skoog

For G. L. Green

cc:
OSHD (W. Hart)

RECEIVED
STATE HWY ENGR
JAN 21 '75
REFER TO
Hunter
FOR

| Info | Inves | R/D | D/R | Sign | Act | Sta |
|---|---|---|---|---|---|---|
|  |  |  |  |  | X |  |

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JAN 21 1975
OFFICE OF
ASSISTANT STATE HIGHWAY ENGINEER

**OREGON STATE**
**HIGHWAY DIVISION**

HIGHWAY BUILDING • SALEM, OREGON • 97310

TOM McCALL
GOVERNOR

F. B. KLABOE
Administrator of Highways

January 13, 1975

NOTED
E. S. HUNTER

Mr. Glen Green
Division Engineer
Federal Highway Administration
Salem, Oregon

Dear Mr. Green:

Sverdrup & Parcel and Assoc., Consultant Agreement
In connection with Phase B-Final Design
Columbia River Bridge #9555, I-205
Final Payment of Item VI

On October 24, 1973 we entered into a supplemental agreement to the original consultant agreement of September 30, 1970 to conduct a test pile and plate load test program. This became Item VI on Sverdrup & Parcel's billing invoices in connection with Phase B - Final Design for this project.

Item VI is now complete and accepted by the Oregon State Highway Division in the amount of $92,148.00. We are, however, retaining 10 percent of this amount on each month's Sverdrup & Parcel billing.

Supplemental agreement number five, dated October 30, 1974, specifically provides that upon completion and acceptance of the test pile and plate load test program, 100 percent of the retainage will be released.

We are requesting your approval for the 100 percent retainage release on Item VI, the test pile and plate load test program so that full and final payment can be made to Sverdrup & Parcel on this item.

Very truly yours,

WALTER J. HART
Walter J. Hart
Bridge Engineer

RECEIVED
JAN 14 1975
OFFICE OF
ASSISTANT STATE HIGHWAY ENGINEER

JHA:dh

cc E. S. Hunter
L. W. Rulien
V. E. Skoog

A DIVISION OF THE DEPARTMENT OF TRANSPORTATION

8905 Consult

8

Bridge No. 9555

**OREGON STATE**
**HIGHWAY DIVISION**

HIGHWAY BUILDING • SALEM, OREGON • 97310

TOM McCALL
GOVERNOR

F. B. KLABOE
Administrator of Highways

January 9, 1975

Mr. Jack Allen, PE
Sverdrup & Parcel and Associates, Inc.
P. O. Box 369
Bellevue, WA 98004

Dear Mr. Allen:

Columbia River (I-205) Bridge
Bridge No. 9555
Design Review

In our design review of spans 1 through 10, we have noted that the AASHTO specification governing the minimum thickness for bottom flanges of box girders is not being adhered to. In a telephone conversation with Phil Oakley you suggested that the specifications were a "rule of thumb" and that your frame analysis of the cross-section warranted the use of the thinner bottom slabs.

Before approving this deviation from the specifications, we would appreciate background material justifying the "rule of thumb" statement. Our final approval will also depend upon our concurrence with your frame analysis procedures.

Very truly yours,

WALTER J. HART
Walter J. Hart
Bridge Engineer

cc E. S. Hunter
C. S. Gloyd

NOTED
E. S. HUNTER

RECEIVED
JAN 10 1975
OFFICE OF
ASSISTANT STATE HIGHWAY ENGINEER

8905
Consult.

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File: Bridge 9555

**OREGON STATE**
**HIGHWAY DIVISION**

HIGHWAY BUILDING • SALEM, OREGON • 97310

TOM McCALL
GOVERNOR

F. B. KLABOE
Administrator of Highways

December 3, 1974

Mr. Jack Allen, P.E.
Sverdrup & Parcel and Associates, Inc.
P. O. Box 369
Bellevue, WA 98004

NOTED
E. S. HUNTER

Dear Mr. Allen:

Columbia River (I-205) Bridge
Bridge No. 9555
Motorist Aid System

Here are two sets of prints showing the location and installation details for motorist call boxes on the subject structure.

The locations on the southbound structure are critical because of the on and off ramps. The locations on the northbound structure, however, can be moved north as much as 200 feet if necessary to avoid reduction of the eight-foot minimum bike path width.

Since this is to be a future installation it will only require showing the necessary conduit on the present plans.

Very truly yours,
ORIGINAL SIGNED
WALTER J. HART
Walter J. Hart
Bridge Engineer

PMO:dh
Enclosure

cc C. S. Gloyd /w/ 1 encl.
R. L. Carroll /w/ 1 encl.
R. N. Bothman /w/ 1 encl.
Glen Green /w/ 1 encl.
E. S. Hunter

RECEIVED
DEC 4 1974
OFFICE OF
ASSISTANT STATE HIGHWAY ENGINEER

A DIVISION OF THE DEPARTMENT OF TRANSPORTATION

8905
Consult.

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**OREGON STATE
HIGHWAY DIVISION**

HIGHWAY BUILDING • SALEM, OREGON • 97310

TOM McCALL
GOVERNOR

F. B. KLABOE
Administrator of Highways

File Bridge 9555

November 19, 1974

Mr. Jack Allen
Sverdrup & Parcel and Associates, Inc.
P. O. Box 369
Bellevue, WA 98004

NOTED
E. S. HUNTER

Dear Mr. Allen:

Parapet Rail and Expansion Joint Details
Columbia River (I-205) Bridge
Bridge 9555

The enclosed copy of a letter from the State of Washington approving the "Geometrical Layout" sheet submitted with your letter of October 21, 1974, includes several comments concerning the parapet rail.

The rail dimensions on your layout sheet do not conform to those of the current State of Washington standard. The difference lies in the thickness of the rail fascia section. We believe the width as shown on your section is preferable to the 4 1/2" dimension shown on the State of Washington section. As indicated by Washington, the decrease in the cross-sectional area at the deck level from 11" to 9 1/2" will require an increase in reinforcement through that section. The slope of the inside face of the parapet, as shown on your cross section, is in conformance with Oregon's practice. We have not observed any problems with this type of railing and the slope. Therefore, we believe that the standard as shown is satisfactory and should be used.

The 1/2" block-out for the asphalt overlay was developed to alleviate a leakage problem with some of the earlier membrane waterproofing systems. It is not necessary with the newer membrane systems and should be deleted.

RECEIVED
NOV 19 1974
OFFICE OF
ASSISTANT STATE HIGHWAY ENGINEER

The term "parapet rail" has been used on your drawings to date and meets our standards so this terminology should be retained.

Your letter of October 17, 1974 conveyed information on the types of expansion joints proposed for the Washington approach spans. We have experienced some problems with transflex joints in the way of leakage and noise. We would appreciate a summary of the selection criteria that you have used in sizing the joints.

Very truly yours,

ORIGINAL SIGNED
WALTER J. HART

Walter J. Hart
Bridge Engineer

WJH:dh
Enclosure

cc C. S. Gloyd
R. L. Carroll
E. S. Hunter
R. N. Bothman
G. L. Green /w/ encl.
P. M. Oakley

8905

8

November 5, 1974

Sverdrup & Parcel and Associates, Inc.
505 - 106th Avenue, N.E.
P. O. Box 369
Bellevue, Washington 98004

5 C

Attention: R. D. Bane
Vice President

10/30/74

MISC. CONTRACTS and
AGREEMENTS No. 3835

Gentlemen:

Attached for your records is a fully executed copy of a supplemental agreement for additional work on the Columbia River (I-205) Bridge.

We have retained a fully executed copy of this agreement for the Transportation Commission's files.

Very truly yours,

C. W. Head
COMMISSION SERVICES

fkm

Att.

cc Walt Hart
Attn: Bob Ellison
(agree. att.)

**OREGON STATE**
**HIGHWAY DIVISION**

HIGHWAY BUILDING • SALEM, OREGON • 97310

DATE October 7, 1974

TO Oregon ~~State Highway~~ Transportation Commission

FROM F. B. Klaboe
State Highway Engineer

SUBJECT **Supplemental Design Consulting Agreement**
**Columbia River (I-205) Bridge**

We have completed negotiations with Sverdrup & Parcel, design consultants for the I-205 Columbia River Bridge, on a supplement to the original agreement to cover certain additional work. This work is confined to the original length structure and includes redesign of the structure to accommodate a bike path, design of the bike path, redesign of the southerly end of the structure to accept an extension, redesign of the southerly endto align piers with existing river currents due to abandonment of the airport fill, realignment of piers 4 - 7 as requested by Washington Department of Highways, and production of separate contract documents for the work on the Washington shore.

Because of delays preventing the consultant from completing the design within the originally specified time, the supplement provides for escalation of costs of work done after August 31, 1973 (original completion date was April 27, 1973).

Total increased payment to the consultant allowed by this supplement is $617,000, including a $30,880 contingency fund.

This supplement has been approved by the Federal Higwhay Administration and the Washington State Highway Department. If you approve, I will sign this agreement on your behalf under authority delegated to me.

This matter will be on the agenda of the October 30 meeting.

bc: C. W. Head
G. M. Baldwin
A. E. Johnson
V. E. Skoog
E. S. Hunter
Ed Hart
Jack Sollis
Jack Graham

REE:dh dpy

September 5, 1974

Mr. R. C. West
Executive Vice President
Sverdrup & Parcel and Associates, Inc.
800 North 12th Blvd.
St. Louis, MO 63101

Dear Mr. West:

Columbia River (I-205) Bridge
Bridge 9555
Design Consultant
Supplemental Agreement

After receiving your letter of July 11, 1974, concerning the subject, we have reviewed the supplemental agreement regarding the computer programs. Paragraph 14 of the supplement has been rewritten to reflect the obligations of the original agreement.

The revised supplemental agreement is submitted herewith in triplicate, for your approval. Please return two signed copies to this office for further processing. A completed copy will be sent to you when all signatures have been obtained.

Very truly yours,

E. S. Hunter
Assistant State Highway Engineer

RWE:dh

Attachment

cc F. B. Klaboe
A. E. Johnson
L. W. Rulien
W. J. Hart
V. E. Skoog

**SVERDRUP & PARCEL AND ASSOCIATES, Inc.**
**CONSULTING ENGINEERS**
**800 N. 12TH BOULEVARD**
**ST. LOUIS, MISSOURI 63101**

July 11, 1974

Mr. Walter J. Hart
Bridge Engineer
Oregon State Highway Division
Highway Building
Salem, Oregon 97310

Dear Mr. Hart:

Subject: Columbia River (I-205) Bridge
Bridge 9555
Design Consulting Agreement Supplement

This letter is in confirmation of and further reference to our telephone discussion of Thursday, July 11, 1974, in regard to paragraph 14 of the proposed Supplemental Agreement.

It is our present understanding that the computer programs specifically in question are our Program Nos. P7312 and P7313 which were developed for the design and analysis of the precast portions of the bridge which will be constructed by the cantilevered, post-tension method, i.e. the main spans and the Oregon approach spans. It is understood that you do not require the use of programs which we used for design of the cast-in-place portions of the superstructure. Special programs which are unique to this structure can be furnished to you if needed. As explained to you, it is our interpretation that under the original lump sum contract we had the option of using either computer or manual methods in our work and the use of computer methods was not a condition of the contract. We did, however, contemplate the development of a program during the course of the design at the time we made our original estimate, although we did not provide for the total cost of program development in our original estimate. In carrying out program development, we did charge to our job accounting records the time of personnel engaged in the program development but certain related costs were not so charged and were absorbed in our normal overhead. These costs related to machine time, testing, etc. In other words, this project did not pay totally for the cost of development of the programs.

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Additionally, we cannot agree with the wording of the proposed paragraph 14 which states, "Such programs will become the property of the State and will be documented as to storage requirements and formulas and routines used by the programs. The material to be furnished will include sample problems showing input and output together with a detailed explanation of how each program is used and its limitations. These programs will be furnished to the State no later than August 31, 1974. The Consultant will receive no additional compensation for furnishing said programs".

If we were to agree to furnish the programs in question to the State, we would expect to do so under an arrangement in which the State would agree that the programs are being furnished for specific purposes and under which we would in no way surrender our title to or rights of use in the programs. To furnish the degree of documentation and detailed explanation referred to above would entail considerable additional time on our part and we do not feel we should be expected to do so without additional compensation. If a program is to be furnished to a potential user by any author, a disclaimer should also be a part of the agreement so that the author is protected against claims which might result from undetected errors.

As an alternate to furnishing to the State program Nos. P7312 and P7313, we suggest that it may be possible for you to verify the accuracy of the programs by furnishing test problems to us which we would run. If you were satisfied with the test results, this should enable you to accept the program output. If this is not suitable to you, we would suggest that we enter into a separate agreement furnishing the programs to you under the conditions outlined in this letter. If you are agreeable to this, it may be possible to delete paragraph 14 from the proposed Supplemental Agreement and accelerate the processing of that agreement.

We will be pleased to discuss this further with you at your convenience.

Yours very truly,

SVERDRUP & PARCEL AND ASSOCIATES, Inc.

RCWest

R. C. West
Executive Vice President

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BRIDGE DIVISION

Bikeways ✓
9555

**SVERDRUP & PARCEL AND ASSOCIATES, Inc.**
*Consulting Engineers*
505 - 106TH AVENUE N. E.
P. O. BOX 369
BELLEVUE, WASHINGTON 98004

May 15, 1974

Oregon State Highway Division
Highway Building
Salem, Oregon 97310

Attention: Mr. Walter J. Hart
Bridge Engineer

Gentlemen:

Subject: I-205 Columbia River Bridge
Bridge 9555
Sta. 8+40 to Sta. 85+00
Proposal for Engineering Services

We are pleased to submit this proposal for consulting services to add a pedestrian-bicycle path to the subject bridge.

This proposal includes the design of the bike path with an access ramp only at the north end, redesign of the bridge to accommodate the bike path, realignment of the columns for Piers 4 through 7, and preparing an additional set of contract documents for construction on the Washington shore. Also included in this proposal is redesign of the bridge to accommodate a proposed 4,070-foot southerly extension. Redesign due to the extension is included because it will be done simultaneously with redesign due to the bike path. Design of the southerly extension and bike path access ramp is not included.

Work under our agreement dated September 30, 1970, has been delayed beyond the specified completion time of 19 months (April 27, 1973). We have therefore included in this proposal an amount to cover the escalation in our costs. August 31, 1973, has been selected as the date beyond which escalated costs are required.

The estimated amounts for checking shop drawings must also be increased. Additional manhours will be required because of the bike path and the manhour rates must be increased. We have enclosed a memorandum from our comptroller to document our Salary Related Expense of 30.0 percent and Overhead of 57.0 percent.

The following sheets provide a detailed breakdown of our fees for the several items.

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EXHIBIT A

NOTED
P.M. OAKLEY

1. Design Pedestrian-Bicycle Path

This item comprises design of the bike path for the original bridge length of 7,660 feet and includes the design of an access ramp at the north end of the bike path.

| | | |
|---|---|---|
| Manhours required | | 3,940 |
| Average Salary Rate | | $ 8.40 |
| Base Productive Salaries | | 33,100 |
| Salary Related Expense @ 24.0% | | 7,940 |
| Total Salary Cost | | $ 41,040 |
| Overhead @ 57.0% | | 23,390 |
| Direct Cost | | |
| Computer Time | $4,570 | |
| Travel and Subsistence | 340 | |
| Reproductions | 490 | |
| Total Direct Cost | | 5,400 |
| Total Cost | | $ 69,830 |
| Profit | | 10,470 |
| Fee | | $ 80,300 |

EXHIBIT A

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2. Redesign Bridge to Accommodate Bike Path

This item is that portion of the bridge redesign which is attributable to the addition of the bike path. It is assumed that this redesign will be done simultaneously with redesign due to the proposed southerly bridge extension.

| | | |
|---|---|---|
| Manhours required | | 11,070 |
| Average Salary Rate | | $ 8.40 |
| Base Productive Salaries | | 92,990 |
| Salary Related Expense @ 24.0% | | 22,320 |
| Total Salary Cost | | $115,310 |
| Overhead @ 57.0% | | 65,730 |
| Direct Cost | | |
| Computer Time | $10,120 | |
| Travel and Subsistence | 610 | |
| Reproductions | 1,070 | |
| Total Direct Cost | | 11,800 |
| Total Cost | | $192,840 |
| Profit | | 28,930 |
| Fee | | $221,770 |

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EXHIBIT A

## 3. Redesign Bridge to Accommodate Extension

This item is that portion of the bridge redesign which is attributable to the proposed 4,070-foot southerly extension, but design of the extension is not included. It is assumed that this redesign will be done simultaneously with redesign due to the bike path.

| | | |
|---|---|---|
| Manhours required | | 7,250 |
| Average Salary Rate | | $ 8.40 |
| Base Productive Salaries | | 60,900 |
| Salary Related Expense @ 24.0% | | 14,620 |
| Total Salary Cost | | $ 75,520 |
| Overhead @ 57.0% | | 43,050 |
| Direct Cost | | |
| Computer Time | $3,620 | |
| Travel and Subsistence | 250 | |
| Reproductions | 340 | |
| Total Direct Cost | | 4,210 |
| Total Cost | | $122,780 |
| Profit | | 18,420 |
| Fee | | $141,200 |

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EXHIBIT A

## 4. Change Column Alignment of Piers 4 through 7

This item includes the bridge redesign to change column alignment to parallel the Lewis and Clark Highway (SR-14) on the Washington shore.

| | | |
|---|---|---|
| Manhours required | | 400 |
| Average Salary Rate | | $ 6.50 |
| Base Productive Salaries | | 2,600 |
| Salary Related Expense @ 24.0% | | 620 |
| Total Salary Cost | | $ 3,220 |
| Overhead @ 57.0% | | 1,840 |
| Direct Cost | | |
| Computer Time | $100 | |
| Total Direct Cost | | 100 |
| Total Cost | | $ 5,160 |
| Profit | | 770 |
| Fee | | $ 5,930 |

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5. Prepare Additional Set of Contract Documents

This item comprises the preparation of an additional set of contract documents in accordance with specifications of the State of Washington. The additional documents provide for a separate construction contract for spans on the Washington shore.

| | | |
|---|---|---|
| Manhours required | | 200 |
| Average Salary Rate | | $ 8.40 |
| Base Productive Salaries | | 1,680 |
| Salary Related Expense @ 24.0% | | 400 |
| Total Salary Cost | | $ 2,080 |
| Overhead @ 57.0% | | 1,180 |
| Direct Cost | | |
| Reproductions | $200 | |
| Total Direct Cost | | 200 |
| Total Cost | | $ 3,460 |
| Profit | | 520 |
| Fee | | $ 3,980 |

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EXHIBIT A

### 6. Escalated Cost of Uncompleted Design

This item provides for escalated costs due to delays beyond our control. Column A lists the cost to complete the design during the contemplated design period. Column B lists the cost of the same work under the terms of our original agreement.

| | | A. During Contemplated Design Period (Aug. 1973 - Apr. 1975) | | B. Under Original Agreement (Oct. 1971 - Aug. 1973) |
|---|---|---|---|---|
| Original Total Manhours | | -- | | 68,900 |
| 55.1% Completed to Aug. 31, 1973 | | -- | | 37,960 |
| Manhours Remaining | | 30,940 | | 30,940 |
| Avg. Salary Rate | | $ 8.40 | | $ 7.50 |
| Base Productive Salaries | | 259,900 | | 232,050 |
| Salary Related Expense | @ 24.0% = | 62,380 | @ 21.5% = | 49,890 |
| Total Salary Cost | | $322,280 | | $281,940 |
| Overhead | @ 57.0% = | 183,700 | @ 55.0% = | 155,070 |
| Direct Cost | | 62,410 | | 62,410 |
| Total Cost | | $568,390 | | $499,420 |
| Profit | | 82,130 | | 72,160 |
| Fee | | $650,520 | | $571,580 |
| Escalated Cost ($650,520 less $571,580) | | $ 78,940 | | |

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EXHIBIT A

## 7. Revised Cost to Check Shop Drawings

This item covers the increased manhours for checking bike path shop drawings and increased hourly rates because of escalation in our Salary Related Expense and Overhead Cost.

**EXHIBIT H** Agreed Hourly Rates

| Grade | Monthly Salary Min. | Monthly Salary Max. | Average Hourly Wage | Agreed Hourly Rate |
|---|---|---|---|---|
| T-1 | $ 280 | $ 415 | $ 2.00 | $ 4.85 |
| T-2 | 420 | 565 | 2.84 | 6.90 |
| T-3 | 570 | 745 | 3.79 | 9.20 |
| P-1 | 750 | 895 | 4.75 | 11.55 |
| P-2 | 900 | 1,045 | 5.61 | 13.65 |
| P-3 | 1,050 | 1,195 | 6.48 | 15.75 |
| P-4 | 1,200 | 1,355 | 7.37 | 17.90 |
| P-5 | 1,360 | 1,525 | 8.32 | 20.20 |
| P-6 | 1,530 | 1,695 | 9.30 | 22.60 |
| P-7 | 1,700 | 1,895 | 10.37 | 25.20 |
| P-8 | 1,900 | 2,095 | 11.52 | 28.00 |
| P-9 | 2,100 | 2,400 | 12.98 | 31.55 |

## PARAGRAPH IV. PAYMENT

### B. FINAL DESIGN

Fee Schedule

| Number | Item | Unit and Quantity | Unit Price | Amount |
|---|---|---|---|---|
| 4(a) | Check Drawings | 9,200 hrs. | See Exh. H | $207,900.00 |
| 4(b) | Direct Costs | All | At Actual Cost | $ 52,100.00 |

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EXHIBIT A

We propose to furnish the additional services to accomplish Items 1 through 6 for the lump sum fee of $532, 120 summarized as follows:

| | | |
|---|---|---|
| 1. | Design Pedestrian-Bicycle Path | $ 80, 300 |
| 2. | Redesign Bridge to Accommodate Bike Path | 221, 770 |
| 3. | Redesign Bridge to Accommodate Extension | 141, 200 |
| 4. | Change Column Alignment of Piers 4 through 7 | 5, 930 |
| 5. | Prepare Additional Set of Contract Documents | 3, 980 |
| 6. | Escalated Cost of Uncompleted Design | 78, 940 |
| | Total Lump Sum Fee | $532, 120 |

We further propose that the contract limiting amount for checking shop drawings be increased from $206, 000.00 to $260, 000.00 as shown for Item 7.

Contract documents for construction of the spans on the Washington shore will be furnished before December 24, 1974. The time for submission of contract documents for the remaining spans will be established after approval of a scheme for extending the bridge.

Very truly yours,

SVERDRUP & PARCEL AND ASSOCIATES, Inc.

R. D. Bane

R. D. Bane, P. E.
Vice President

Enclosures

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BRIDGE DIVISION

EXHIBIT A

May 13, 1974

MEMORANDUM

TO: R. D. Bane

FROM: W. F. Knapp

In our phone conversation you requested rates for Salary Related Expense and General Administrative Overhead for the year 1978. As explained to you at that time it is almost impossible to establish a firm rate for the year 1978 due to the many unknowns that enter into the rate computations.

Your attention is called to the fact that from time to time Congress accelerates the scheduled Social Security contributions of employees and employers as well as considering legislation in connection with benefits under Pension Plans. In addition to these items, the Company at various times updates certain areas of its Salary Related Expense (fringe benefits) such as vacation, sick leave and holiday policies and Company participation in Group Hospitalization and Medical Insurance Programs.

Due to the foregoing, it is suggested that a Salary Related Expense rate of between 30% and 35% can be foreseen.

In connection with the General Administrative Overhead rate a study of the past 3 years experience has resulted in an average General Administrative Overhead rate of 57% of Productive Salary Cost. It is expected that this rate will remain fairly constant in the future.

It is suggested that if it is necessary to quote percentages for 1978 that the following rates be used in estimating future cost, however, provisions should be made to allow an updating at a time when more realistic figures can be determined:

Salary Related Expense - 30% of Productive Salaries.

General Administrative Overhead - 57% of Productive Salary Cost.

If you have any questions in connection with the foregoing, please contact me.

W. F. Knapp

W. F. Knapp
Comptroller

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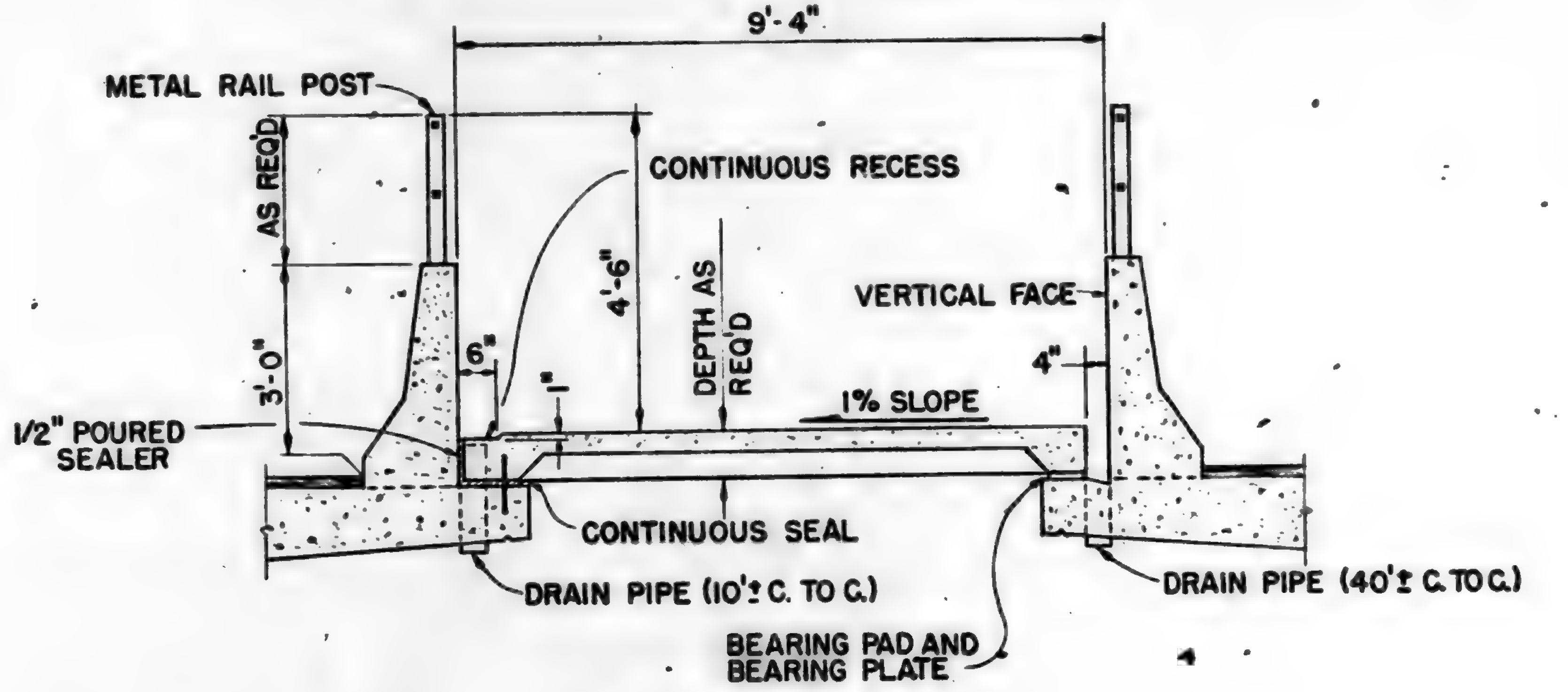
EXHIBIT A


9'-4"
METAL RAIL POST
AS REQ'D
3'-0"
1/2" POURED SEALER
CONTINUOUS RECESS
4'-6"
DEPTH AS REQ'D
6"
1"
1% SLOPE
VERTICAL FACE
4"
CONTINUOUS SEAL
DRAIN PIPE (10'± C. TO C.)
BEARING PAD AND BEARING PLATE
DRAIN PIPE (40'± C. TO C.)

PROPOSED
PEDESTRIAN BICYCLE PATH
I-205. CROSSING OF THE
COLUMBIA RIVER BRIDGE

EXHIBIT B

8905 Conc

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**OREGON STATE**
**HIGHWAY DIVISION**

HIGHWAY BUILDING • SALEM, OREGON • 97310

TOM McCALL
GOVERNOR

F. B. KLABOE
Administrator of Highways

October 28, 1974

Mr. Jack Allen
Sverdrup & Parcel and Associates, Inc.
P. O. Box 369
Bellevue, WA 98004

NOTED
E. S. HUNTER

Dear Mr. Allen:

Foundation Design Criteria
Columbia River (I-205) Bridge
Bridge 9555

The proposed foundation design criteria for piers 1 through 4, as set forth in your letters of August 8 and September 5, 1974, are approved. The design bearing values proposed are conservative based on the results of the foundation drillings and load test program.

The State of Washington has indicated that the embankment at pier 1 is being constructed of good granular material compacted in accordance with our specifications for bridge embankments. We believe that it will not be necessary to overexcavate for the footings at pier 1. The compacted embankment material should be suitable for founding the footings for this pier.

The 7 tons-per-square-foot design bearing value for piers 5 through 10 proposed in your letter of September 5 is approved.

We are withholding comment on the use of a design bearing pressure of 12,000 psi on the pile tip area for the steel piling in the piers south of pier 13. A decision on this will be made after we

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ASSISTANT STATE HIGHWAY ENGINEER

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receive your analysis of driving stresses. The maximum design value for these piles would be 200 tons. If it should develop that 12,000 psi bearing pressure is used, we believe that some confinement reinforcement around the piling in the footings may be in order.

Enclosed is a copy of an October 22, 1974 letter from the Federal Highway Administration in which they list four questions on the foundation design for piers 11 through 13. I would appreciate your comments on the four items in question.

The State of Washington has indicated some concern with the design concept for pier 12. Their concern is that the inflow of water may be more than anticipated. My personal preference is with the plan as proposed rather than the alternate prestressed rock anchor system. This is on the assumption of reasonable assurance that the inflow of water can be controlled. I would appreciate your comments on this also.

Very truly yours,

ORIGINAL SIGNED
WALTER J. HART
Walter J. Hart
Bridge Engineer

WJH:dh
Enclosure

cc C. S. Gloyd
R. L. Carroll
H. A. Schell
E. S. Hunter
R. N. Bothman

Box 300
Salem OR 97308

October 22, 1974

1041BR

Oregon Project I-205-7(2)303
Columbia River Bridge
Foundation Design Criteria

G. L. Green, Division Engineer

Mr. F. B. Klaboe, Administrator & State Highway Engineer
Salem, Oregon

Sverdrup and Parcel's September 5 letter outlining revised foundation concepts has been received and partially reviewed. We are concerned with the comments on Piers 11 through 13 which site a possible settlement problem in the strata underlying the Troutdale cemented gravels. Before a commitment of any drilling is made additional information is felt necessary. This information is as follows:

1. What are the approximate pier loads and foundation distribution expected.
2. How much settlement do you anticipate with approximately 60 feet of Troutdale gravel below the caisson (projected Troutdale gravel strata depth from foundation report submitted March 10, 1971).
3. What are the foundation consultant's comments on this specific item.
4. What affect will this design alteration have on the footing size.

We feel that these questions should be presented to Sverdrup and Parcel prior to any decision on additional drilling.

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G. L. Green

HASchell:bk

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Consult

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Form FHWA 121 (Rev. 5-73)

UNITED STATES GOVERNMENT
*Memorandum*

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
Box 300
Salem OR 97308

DATE: October 22, 1974

In reply refer to: 1041BR

SUBJECT: Oregon Project I-205-7(2)303
Columbia River Bridge
Foundation Design Criteria

FROM : G. L. Green, Division Engineer

TO : Mr. F. B. Klaboe, Administrator & State Highway Engineer
Salem, Oregon

Sverdrup and Parcel's September 5 letter outlining revised foundation concepts has been received and partially reviewed. We are concerned with the comments on Piers 11 through 13 which site a possible settlement problem in the strata underlying the Troutdale cemented gravels. Before a commitment of any drilling is made additional information is felt necessary. This information is as follows:

1. What are the approximate pier loads and foundation distribution expected.

2. How much settlement do you anticipate with approximately 60 feet of Troutdale gravel below the caisson (projected Troutdale gravel strata depth from foundation report submitted March 10, 1971).

3. What are the foundation consultant's comments on this specific item.

4. What affect will this design alteration have on the footing size.

We feel that these questions should be presented to Sverdrup and Parcel prior to any decision on additional drilling.

for G. L. Green

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STATE HWY ENGR
OCT 23 '74
REFER TO
Orig — Hunter
FOR

Cy acj

8905 Consult

File: Br. 9555

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OREGON STATE
HIGHWAY DIVISION

HIGHWAY BUILDING • SALEM, OREGON • 97310

TOM McCALL
GOVERNOR

F. B. KLABOE
Administrator of Highways

October 9, 1974

Mr. R. Jack Allen, P.E.
Sverdrup & Parcel and Associates, Inc.
P O Box 369
505 106th NE
Bellevue, WA 98004

Dear Mr. Allen:

Columbia River (I-205) Bridge
Br. 9555
Pedestrian Rail Height

During our recent review of the pedestrian rail details submitted with your letter of September 25, 1974, we noticed, as per our previous instructions, the rail height above the finish grade of the bike path is 4'6". This places the top rail 5'-0"± above the roadway surface. We feel lowering the rail height to 4'-0" above finish grade of the bike path should be considered keeping the following items in mind.

1. Safety of the pedestrian or cyclist
2. Emergency access from the roadway
3. Aesthetic considerations.

Your comments on the above will be appreciated.

Very truly yours,

ORIGINAL SIGNED
WALTER J. HART

Walter J. Hart
Bridge Engineer

PMO/ag

cc G. Green
C. S. Gloyd
E. S. Hunter

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OCT 10 1974
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ASSISTANT STATE HIGHWAY ENGINEER

NOTED
E. S. HUNT

A DIVISION OF THE DEPARTMENT OF TRANSPORTATION

8905 Consult.

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Bridge 9555

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**OREGON STATE**
**HIGHWAY DIVISION**

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TOM McCALL
GOVERNOR

F. B. KLABOE
Administrator of Highways

October 4, 1974

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OCT 4 1974
OFFICE OF
ASSISTANT STATE HIGHWAY ENGINEER

Mr. Jack Allen
Sverdrup & Parcel and Associates, Inc.
P. O. Box 369
Bellevue, WA 98004

Dear Mr. Allen:

Roadway Illumination
Columbia River (I-205) Bridge
Bridge 9555

A re-evaluation of the illumination design criteria for the Columbia River crossing would indicate that a change in the mounting height criteria is in order. We recommend that the most efficient mounting height, 50 feet or less, be utilized. The previous 40-foot limitation was based on the restirction from encroachment into the PIA glide path.

In review, the mounting height should be based on the most efficient height with pole heights adjusted in the area of the glide path as required. Based on this assumption our preliminary figures would indicate that the specified light level and uniformity ratio can be obtained with a 50-foot mounting height, 6-foot overhang using 400-watt high-pressure sodium lamps and 1,000 watt luminaires with a 150-foot staggered spacing.

Attached is a photometric curve and computer print-outs for several alternate mounting heights and mast arm lengths including the one described above.

We would appreciate your reviewing the design of the illumination based on the adjusted design criteria.

Very truly yours,

ORIGINAL SIGNED
WALTER J. HART

Walter J. Hart
Bridge Engineer

WJH:dh
Attachment
cc C. S. Gloyd /w/ attach.
H. A. Schell /w/ attach.
R. N. Bothman
R. L. Carroll
E. S. Hunter

NOTED
E. S. HUNTER

8905
Consult

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Bridge 9555

**OREGON STATE
HIGHWAY DIVISION**

HIGHWAY BUILDING • SALEM, OREGON • 97310

TOM McCALL
GOVERNOR

F. B. KLABOE
Administrator of Highways

October 4, 1974

RECEIVED
OCT 4 1974
OFFICE OF
ASSISTANT STATE HIGHWAY ENGINEER

Mr. Jack Allen
Sverdrup & Parcel and Associates, Inc.
P. O. Box 369
Bellevue, WA 98004

Dear Mr. Allen:

Foundation Design Criteria
Columbia River (I-205) Bridge
Bridge 9555

The proposed foundation design criteria for Piers 1 through 4, as set forth in your letters of August 8 and September 5, 1974, are approved. The design bearing values proposed are conservative based on the results of the foundation investigation. We concur with your recommendation of over-excavation and recompaction of the fill material at Pier 1 prior to founding the footing on that material. Possibly consideration should be given to specifying selected backfill contingent on review of the material to be used in the approach embankment.

The seven tons per square foot design bearing value for Piers 5 through 10 proposed in your letter of September 5 is approved.

We would prefer to defer final approval of the footing elevations proposed for Piers 2 through 10 pending further study of the foundation data. A design bearing pressure of 12,000 psi on the pile tip area, not including pile tip reinforcement for the steel piling in the piers south of Pier 13, is approved. The maximum design value for these piling would be 200 tons as indicated.

Very truly yours,

Walter J. Hart
Bridge Engineer

WJH:dh

NOTED
E. HUNTER

cc C. S. Gloyd
H. A. Schell
E. S. Hunter✓
R. N. Bothman     R. L. Carroll

A DIVISION OF THE DEPARTMENT OF TRANSPORTATION

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**OREGON STATE**
**HIGHWAY DIVISION**

HIGHWAY BUILDING • SALEM, OREGON • 97310

TOM McCALL
GOVERNOR

F. B. KLABOE
Administrator of Highways

August 23, 1974

NOTED
E. S. HUNTER

RECEIVED
AUG 23 1974
OFFICE OF
ASSISTANT STATE HIGHWAY ENGINEER

Mr. C. S. Gloyd
Bridge Engineer
Washington Department of Highways
Highway Administration Building
Olympia, WA 98504

Dear Mr. Gloyd:

Columbia River (I-205) Bridge
Bridge 9555
Foundation Design Criteria

The following is supplemental information to aid you in your study of Sverdrup & Parcel's foundation design criteria forwarded with our letter of August 22, 1974.

Using the criteria as listed, tentative footing sizes were determined by the Consultant.

Pier 2 21' x 25' x 7'
Pier 3 20' x 24' x 7'
Pier 4 21' x 25' x 7'

Each of the above individual footings supports one 10' round column.

The bearing values used were based on limiting the differential settlement between piers rather than the ultimate capacity of the soil.

Very truly yours,

Walter J. Hart
Bridge Engineer

ORIGINAL SIGNED
R.W. ELLISON

R. W. Ellison
Bridge Administration Engineer

PMO:dh
cc Glen Green
E. S. Hunter

8905
Consult

Form FHWA 121 (Rev. 5-73)

UNITED STATES GOVERNMENT

# *Memorandum*

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
Box 300
Salem OR 97308

DATE: August 19, 1974

In reply refer to: 1041BR

SUBJECT: Oregon Project I-205-7(2)302
Columbia River Bridge Consultant Design
Agreement Supplement No. 3

FROM : G. L. Green, Division Engineer

TO : Mr. F. B. Klaboe, Administrator & State Highway Engineer
Salem, Oregon

NOTED
E. S. HUNTER

We have reviewed Mr. Hunter's submittal of July 3 documenting proposed supplemental number 3 of the consultant's agreement for the Columbia River Bridge. We find that your support data gives complete, clear, and concise information. We commend you on the submittal. Approval is hereby given of the supplement as submitted.

Please note under Item 8, page 3, Federal participation in the cost of checking shop drawings based on the revised schedule of hourly rates will be limited to those costs incurred following approval of this supplement.

The limiting cost for this agreement including previously approved supplements and amendments is now estimated to be $2,814,224.

GLGreen
G. L. Green

8-23-74
cc: Coulter
Hart
P.m. Oakley

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OFFICE OF
ASSISTANT STATE HIGHWAY ENGINEER

NOTED
A. E. JOHNSON

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AUG 22 '74
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**OREGON STATE**
**HIGHWAY DIVISION**

HIGHWAY BUILDING • SALEM, OREGON • 97310

TOM McCALL
GOVERNOR

F. B. KLABOE
Administrator of Highways

August 16, 1974

Mr. Ray Bane
Sverdrup & Parcel and Associates, Inc.
P. O. Box 369
Bellevue, WA 98004

NOTED
E. S. HUNTER

Dear Mr. Bane:

Extension
Columbia River (I-205) Bridge Section

The State and the Federal Highway Administration are in agreement that Alternate 2 is preferred for the extension of the Columbia River (I-205) Bridge. This is Alternate 2 as shown on Plate 5 and described on page 21 of your March 1974 "Report on the Southerly Extension of the Proposed I-205 Columbia River Bridge."

Please proceed with the design for that portion of the structure lying between pier 14 and the nearest hinged span in the vicinity of Station 70. A revision in the profile south of Station 70+00 is being made to lessen the fill height across Government Island. The revised profile south of Station 70 will be furnished to you as soon as it is available.

Approval to proceed with the design is limited to that portion of the structure north of Station 70±. Design work on the structure south of that point cannot be approved until the final environmental impact statement is circulated and approved. Billing for design of this portion of the structure can be handled in the normal manner since it is covered under our current design contract plus supplements.

Very truly yours,

HART

Walter J. Hart
Bridge Engineer

WJH:dh
cc E. S. Hunter
C. S. Gloyd
R. N. Bothman
R. L. Carroll
G. L. Green

RECEIVED
AUG 19 1974
OFFICE OF
ASSISTANT STATE HIGHWAY ENGINEER

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Consult.

WASHINGTON STATE
HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS

Highway Administration Building
Olympia, Washington 98504 (206) 753-6005

Daniel J. Evans - Governor
G.H. Andrews - Director

August 9, 1974

NOTED
E. S. HUNTER

8-14-74
cc Rulien
Hart
Glen Green

NOTED
E. S. HUNTER

Mr. E. S. Hunter
Assistant State Highway Engineer
Oregon State Highway Division
Highway Building
Salem, Oregon 97310

Columbia River (I-205) Bridge
Bridge 9555
Oregon Project I-205-7(2)302
Design Consulting Agreement Supplement

Dear Mr. Hunter:

Your letter of July 3 to Mr. George Andrews, Director of Highways, has been forwarded to this office for response.

Please be advised that we have reviewed Supplement No. 3 and the supporting data furnished therein. We find that the agreement meets all of the design objectives considered necessary by the State of Washington. We take note of the fact that the agreement between the two states provides for responsibility for the management of the agreement by the State of Oregon. As a consequence, we have not investigated the detailed cost development to the extent our agency might were the job to be administered by this agency. We are prepared to accept Oregon's conclusions as the management agency in this regard.

Our approval of this supplement is conditioned only by the requirement that the State of Oregon, by its actions, insure that all costs which become the burden of the State of Washington under this agreement are eligible for federal-aid Interstate funds in accordance with prevailing regulations.

Many thanks for the opportunity for review. It is obvious by the volume of the supporting data that Oregon has investigated the subject well.

Very truly yours,

G. H. ANDREWS
Director of Highways

By: W. M. FOSTER
Assistant Director for
Highway Development

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[illegible] 1974
OFFICE OF
ASSISTANT STATE HIGHWAY ENGINEER

GHA:fmd
WMF

cc: R. L. Carroll
C. S. Gloyd
J. Wilson

A. H. Parker Chairman, Bremerton
Harold Walsh, Everett
Baker Ferguson, Walla Walla
Virginia K. Gunby, Seattle
Howard Sorensen, Ellensberg
Harold L. Boulac, secretary

July 3, 1974

Mr. George H. Andrews
Director
Washington Department of Highways
Highway Administration Building
Olympia, WA 98504

Dear Mr. Andrews:

Columbia River (I-205) Bridge
Bridge 9555
Oregon Project I-205-7(2)302
Design Consulting Agreement Supplement

Attached for your preliminary review and comment is a supplement to the original consulting agreement for design of the subject structure. Also included is documented justification of the compensation covered by the supplement. This supplement (tentatively labeled No. 3) covers the following items:

1. Design of a structure-mounted bike path.
2. Redesign of the bridge to accommodate the bike path.
3. Redesign of the bridge to accommodate a future southerly extension.
4. Change of alignment of piers 4 - 7.
5. Prepare additional set of contract documents (Washington section).
6. Escalated cost of uncompleted design.
7. Escalated cost of checking shop drawings and increased quantity of shop drawings because of bike path.

Compensation to the Consultant for work involved in items 1 through 6 is not to exceed $560,000 including a $27,880 contingency fund which cannot be used without prior OSHD approval. Payment for these items is on a lump-sum basis.

The total increased costs under item 7 are not to exceed $57,000 including a $3,000 contingency fund which cannot be used without prior OSHD approval. In accord with the original agreement, payment for item 7 is on an actual-work basis.

This has been a long, hard effort. Your review and comments on this preliminary submittal will be appreciated. After your review we will submit the supplement to the Consultant for signature, then return it to you for signing. Our Transportation Commission will authorize signature after all other parties have signed the document.

Your timely review will be appreciated in order that the Consultant may be compensated for work completed as soon as possible.

Very truly yours,

E. S. Hunter
Assistant State Highway Engineer

Attachment

RWE:dh

cc Glen Green, FHWA
F. B. Klaboe
A. E. Johnson
H. S. Coulter
Ray Bane, S & P
R. L. Carroll, State of Washington
W. J. Hart
P. M. Oakley

NOTE: Attachments on file in Bridge-

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Consult

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**OREGON STATE**
**HIGHWAY DIVISION**

HIGHWAY BUILDING • SALEM, OREGON • 97310

TOM McCALL
GOVERNOR

F. B. KLABOE
Administrator of Highways

August 5, 1974

E. S. HUNTER

Mr. R. Jack Allen
Sverdrup & Parcel and Associates, Inc.
P O Box 369
505 106th NE
Bellevue, WA 98004

Dear Mr. Allen:

Columbia River (I-205) Bridge
Bridge No. 9555
Stationing

It is our understanding that the discrepancy in stationing mentioned in your Progress Report No. 66 dated July 19, 1974 has been resolved in discussions with the Washington State Highway Department and will cause no problem in the completion of the bridge design.

We wish to remind you that to avoid confusion there should be no equation between the Oregon and Washington stationing on the structure, that is any change in stationing should be made at the Washington end of the structure or north of same.

Very truly yours,

Walter J. Hart
Bridge Engineer
By ORIGINAL SIGNED
R.W. ELLISON
R. W. [illegible]
Bridge Administration Engineer

PMO/ag
cc E. S. Hunter
C. S. Gloyd
R. N. Bothman
R. L. Carroll
P. M. Oakley

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1974
OFFICE OF
ASSISTANT STATE HIGHWAY ENGINEER

8705
Consult

FORM 81-734-3030

**OREGON STATE HIGHWAY DIVISION**

INTER-OFFICE CORRESPONDENCE

FILE:

July 31, 1974
Salem, Oregon

NOTED
A. E. JOHNSON

**ORIGINAL SIGNED**
**R.W. ELLISON**

FROM: R. W. Ellison
Bridge Administration Engineer

TO: Mr. Vernon Skoog
Finance Section

SUBJECT:
Columbia River (I-205) Bridge
Bridge 9555
Partial Payment for Consulting Services

The July 19, 1974 letter from FHWA approved making a partial payment to the design consultant on the subject structure to cover some of the items included in the supplemental agreement which is now being negotiated.

The attached invoice from the consultant covers a portion of this partial payment. Our approval from FHWA does not include Item 6 on the attached invoice, and I have corrected the invoice accordingly.

The invoice shows a retainage of 20% which is in accord with the approval received from FHWA.

In addition to the attached invoice, FHWA approval included payment of all retainage being held on the two bike path feasibility studies and the structure extension study. Also approved was reduction of the retainage to 3% on all work completed by the consultant prior to August 31, 1973 (other than bike path design and structure redesign).

I understand that you have sufficient previous billings to calculate payment due the consultant relative to the bike path and extension study retainage and the reduction of other retainage to 3%.

Please make payment to the consultant in accord with the above items at your convenience.

RWE/ag (Attach.)

cc F. B. Klaboe
A. E. Johnson
E. S. Hunter
L. W. Rulien
P.M. Oakley
J. H. Ayres
H. A. Schell-FHWA

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**OREGON STATE
HIGHWAY DIVISION**

HIGHWAY BUILDING • SALEM, OREGON • 97310

TOM McCALL
GOVERNOR

F. B. KLABOE
Administrator of Highways

July 23, 1974

NOTED
A. E. J[illegible]

Mr. Ray Bane, P. E.
Sverdrup & Parcel and Associates, Inc.
P O Box 369
505 106th NE
Bellevue, WA 98004

Dear Mr. Bane:

Columbia River (I-205) Bridge
Bridge No. 9555
Partial Payment

Because of extenuating circumstances including delays to the work and delays in finalizing the pending supplemental design agreement, the FHWA has authorized preliminary partial payment of some items covered by the pending supplemental agreement for the subject project.

Included in this partial payment will be: (1) 80% of the bike path design and structure redesign work done since August 2, 1973, (2) Retainage being held on the two bike path feasibility studies and one structure extension study, and (3) Monies released by reducing the retainage to 3% on all work completed prior to August 31, 1973 (other than bike path design and structural redesign).

In order that we may make this payment we require a billing from you, in the usual manner, for the bike path design and structure redesign work completed since August 2, 1973, the date you were authorized to begin such work. We have sufficient previous billing to allow calculation of payment for the other items.

Very truly yours,
ORIGINAL SIGNED
WALTER J. HART
Walter J. Hart
Bridge Engineer

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RWE/ag
cc F. B. Klaboe L. W. Rulien
A. E. Johnson P. M. Oakley
E. S. Hunter J. H. Ayres
V. E. Skoog H. A. Schell

A DIVISION OF THE DEPARTMENT OF TRANSPORTATION

8/05 Consult

**OREGON STATE**
**HIGHWAY DIVISION**

HIGHWAY BUILDING • SALEM, OREGON • 97310

TOM McCALL
GOVERNOR

F. B. KLABOE
Administrator of Highways

July 23, 1974

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NOTED
A. E. JOHNSON

Mr. George Andrews
Director
Washington Department of Highways
Highway Administration Bldg.
Olympia, WA 98504

Dear Mr. Andrews:

Columbia River (I-205) Br.
Br. No. 9555
Supplemental Agreement
Preliminary Payment

Because of delays suffered by the design work on the subject project and because of previous delays in processing the current supplemental agreement, we intend to make a preliminary partial payment to the design consultant for some of the work covered by the supplement. Additional payment will be made after the supplement is approved by all parties involved.

The attached copy of our letter to FHWA dated July 15, 1974 outlines the basis of payment while the FHWA's answer dated July 19, 1974 approves such payment.

Very truly yours,

ORIGINAL SIGNED
WALTER J. HART

Walter J. Hart
Bridge Engineer

RWE/ag
Attach.
cc F. B. Klaboe
A. E. Johnson
E. S. Hunter

A DIVISION OF THE DEPARTMENT OF TRANSPORTATION

Form FHWA 121 (Rev. 5-73)

UNITED STATES GOVERNMENT

# *Memorandum*

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
Box 300
Salem OR 97308

DATE: July 19, 1974

In reply refer to: 10-41-EC

SUBJECT: Columbia River (I-205) Bridge
Bridge 9555
Partial Payment for Consulting Services

FROM : G. L. Green, Division Engineer

TO : Mr. F. B. Klaboe, Administrator & State Highway Engineer
Salem, Oregon

The proposal to make partial payments to the consultant before signing the supplemental agreement as outlined in Mr. Johnson's July 15 letter is approved. We recognize that this is an unusual situation and that it would be unfair to the contractor to delay payment.

We do feel, however, that this should be viewed as a one-time situation which probably will not occur again.

George L. Green
G. L. Green

NOTED
E. S. HUNTER

c Hunt
Aulin
Skoog.
7-23-74

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A. E. JOHNSON

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OFFICE OF
ASSISTANT STATE HIGHWAY ENGINEER

Form FHWA 121 (Rev. 5-73)

UNITED STATES GOVERNMENT

# *Memorandum*

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
Box 300
Salem OR 97308

DATE: July 19, 1974

In reply refer to: 10-41.7

SUBJECT: Oregon Project I-205-7(2)302
Columbia River Bridge

FROM : G. L. Green, Division Engineer

TO : Mr. F. B. Klaboe, Administrator & State Highway Engineer
Salem, Oregon

Field alterations have affected significantly the design of the I-205 Columbia River structure. This is reflected in the $650,520 Consultant fee requested in Supplemental No. 3 now under review in our office. I feel it would be appropriate to bring all known information affecting this structure into focus by a presentation to our top level Regional administrative people. Historical items such as the proposed extension status and its effect on the structure design, the environmental impact statement, possible reduction of vertical navigation clearances, the Washington State status of freeway construction, and the addition of the bikeway and its effect on the design costs are all items that need concise thinking by administrative people for a unified approach. I understand that your Bridge Section has assembled some information along this line.

Please let me know if you would be willing to make an in-house presentation of this nature and we will coordinate the attendance of Messrs. Lybecker, Green, Tokerud, and Henry to acquaint them with the latest developments of this major connection between States.

G. L. Green

8-74
Presentation in conference room.

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NOTED
A. E. JOHNSON

RECEIVED
JUL 22 1974
OFFICE OF
ASSISTANT STATE HIGHWAY ENGINEER

July 15, 1974

Mr. Glen Green, Division Engineer
Federal Highway Administration

A. E. Johnson
Deputy State Highway Engineer

Columbia River (I-205) Bridge
Bridge 9555
Partial Payment for Consulting Services

On July 26, 1973 FHWA approved adding a bike path to the subject bridge. This involved the design of the structure-mounted path and the redesign of certain portions of the bridge to accommodate the path and the unbalanced loading it imposes on the bridge.

On August 2, 1973 the State accordingly authorized the design consultant, Sverdrup & Parcel, to begin bike path design and bridge redesign work. The Consultant was informed that a supplemental agreement covering this work would be forthcoming. A copy of the supplemental agreement and documented justification was delivered to your office on July 8, 1974 for preliminary review and comment. A copy was also sent to the State of Washington and the Consultant for review and comment. It is now estimated that two or three months may elapse before the agreement is finalized and signed by all parties involved.

The Consultant has indicated he expended approximately $160,000 on bike path design and bridge redesign since August, 1973 and has requested that the State make partial payment to cover some of this expenditure if possible, even though the supplemental agreement has not been signed. Since the State authorized the Consultant to begin this work last August, and since the Consultant has performed a certain amount of the work and is continuing to perform the work in good faith, and since the supplemental agreement covering this work has not yet been executed, it appears equitable that some payment be made to the Consultant for work performed. It is not the State's intent that the Consultant finance the design work for long periods of time. The Consultant would be receiving progress payments by now if the State had been more expeditious in preparing the supplemental agreement.

It appears equitable to make payment to the Consultant for 80 percent of the work performed to date based on normal billing from the Consultant. This is the same type billing used to substantiate payments under the existing agreement.

Under approved supplements to the original agreement the Consultant made two bike path feasibility studies and a feasibility study for a 4,000-foot southerly extension of the bridge. The bike path studies were completed on March 20, 1972 and January 2, 1973. The extension study was completed on March 25, 1974. Because of the time elapsed since completion of these studies and extended time anticipated until completion of all work under the original agreement, of which these studies are supplements, it appears equitable to release all retainage being held in connection with these studies. This release of retainage is included in provisions of the supplemental agreement now being reviewed.

Due to delays beyond his control the Consultant was not able to complete work covered by the original agreement on the anticipated date of April 27, 1973. Because of uncertainties now existing, the State cannot supply the Consultant with information needed to complete the bridge design and it is uncertain as to when the work can be completed. This uncertainty has caused, and will continue to cause the Consultant's retainage to be held much longer than could reasonably be anticipated. This causes the Consultant unanticipated interest costs. Because of these unanticipated delays, it appears equitable for the retainage on all work done prior to August 31, 1973 to be reduced to three percent. The retainage is presently at the five percent rate. This provision is also in the supplemental agreement now being reviewed.

The State and FHWA have given prior letter approval to the Consultant's proceeding with bike path design and bridge redesign. The bike path studies, extension study, and work completed prior to August 31, 1973 are part of previously approved work. Because of extensive delays involved in justification procedure for bike path design and bridge redesign we feel the State has an obligation to make payment to the Consultant prior to formal approval of the supplemental agreement. It is the State's intention to make such payment as outlined above. Billing of FHWA for participation will be delayed until final approval of the current supplement by all parties.

Your approval of this procedure is requested.

bc: F. B. Klaboe
E. S. Hunter
V. E. Skoog
L. W. Rulien
W. J. Hart

RWE:dh;ag cm

8905
Consult.

July 3, 1974

Mr. Glen Green
Division Engineer
Federal Highway Administration
P. O. Box 300
Salem, OR 97308

Dear Mr. Green:

Columbia River (I-205) Bridge
Bridge 9555
Oregon Project I-205-7(2)302
Design Consulting Agreement Supplement

Attached for your preliminary review and comment is a supplement to the original consulting agreement for design of the subject structure. Also included is documented justification of the compensation covered by the supplement. This supplement (tentatively labeled No. 3) covers the following items:

1. Design of a structure-mounted bike path.
2. Redesign of the bridge to accommodate the bike path.
3. Redesign of the bridge to accommodate a future southerly extension.
4. Change of alignment of piers 4 - 7.
5. Prepare additional set of contract documents (Washington section).
6. Escalated cost of uncompleted design.
7. Escalated cost of checking shop drawings and increased quantity of shop drawings because of bike path.

Compensation to the Consultant for work involved in items 1 through 6 is not to exceed $560,000 including a $27,880 contingency fund which cannot be used without prior OSHD approval. Payment for these items is on a lump-sum basis.

The total increased costs under item 7 are not to exceed $57,000, including a $3,000 contingency fund which cannot be used without prior OSHD approval. In accord with the original agreement, payment for item 7 is on an actual-work basis.

Your review and comment on this preliminary submittal is requested.

Very truly yours,

E. S. Hunter
Assistant State Highway Engineer

Attachment

RWE:dh

cc Ray Bane, S & P
F. B. Klaboe
A. E. Johnson
H. S. Coulter
V. E. Skoog
W. J. Hart
L. W. Rulien
P. M. Oakley

NOTE: Attachments on file in Bridge.

8105

Consult.

July 2, 1974

Mr. Glen L. Green, Division Engineer
Federal Highway Administration
Post Office Box 300
Salem, Oregon 97308

Dear Mr. Green:

Columbia River I-205 Bridge
Oregon Project I-205-7(2)303
Bridge 9555
Consultant Design Agreement Supplement

Your letter of June 19, 1974 indicates confusion with some of the items shown in our design consultant's proposal for work to be done under the supplemental design agreement now being negotiated for the subject structure.

These items, final estimate of hours for design of the bike path and percentages for salary-related expenses plus overhead, will be clarified and fully justified in the documents which will accompany the proposed supplemental agreement for your preliminary review. It is anticipated this supplement will be forwarded to you within a week.

Very truly yours,

E. S. Hunter
Assistant State Highway Engineer

RWE:ag js

bc: F. B. Klaboe
A. E. Johnson
W. J. Hart

Form FHWA 121 (Rev. 5-73)

UNITED STATES GOVERNMENT

# *Memorandum*

**DEPARTMENT OF TRANSPORTATION**
FEDERAL HIGHWAY ADMINISTRATION
Box 300
Salem OR 97308

DATE: June 19, 1974

In reply refer to: 10-41.71

SUBJECT: Oregon Project I-205-7(2)303
Columbia River Bridge Design - S&P

FROM : G. L. Green, Division Engineer

TO : Mr. F. B. Klaboe, Administrator & State Highway Engineer
Salem, Oregon

Hart
Ok R/D
reply.
EN

We have been reviewing Mr. Hart's May 14, 1974 memorandum regarding Sverdrup & Parcel's claim for additional money for the design of the Columbia River Bridge.

You apparently agree with the hours shown under Items 2, 3, and 4 of S&P's April 5, 1974 letter. Item 5 is minor. We are, however, confused as to what the final estimate of hours is for the design of the bike path - Item 1. We can see that you have worked diligently to reduce the number to a more acceptable amount, but we could not determine what that final amount is.

Item 6 is to account for escalation in costs remaining under the original work. Inasmuch as we have made a large change in the work which will extend the job, it appears that we could go along with increased labor and markup costs.

In all the items new percentages are used for salary related expenses and overhead. In the backup data you furnished it appears that the most you could support is 22.5% and 60% - yet S&P want 24% and 57%. We don't understand this discrepancy. Whatever value is used will have to be supported.

For G. L. Green

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JUN 20 '74
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Hunter
FOR

NOTED
A. E. JOHNSON

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OFFICE OF
ASSISTANT STATE HIGHWAY ENGINEER

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**OREGON STATE**
**HIGHWAY DIVISION**

HIGHWAY BUILDING • SALEM, OREGON • 97310

TOM McCALL
GOVERNOR

F. B. KLABOE
Administrator of Highways

June 18, 1974

Sverdrup & Parcel
and Associates, Inc.
P O Box 369
Bellevue, Washington 98004

NOTED
E. S. HUNTER

Attention Mr. Ray Bane, P.E.

Dear Mr. Bane:

Columbia River (I-205) Bridge
Bridge No. 9555
Report of Meeting

Attached for your information is a copy of Mr. Ellison's report on the visit of State personnel to your office on June 10-12, 1974.

Item III of the report concerns possible changes in horizontal and vertical alignments of the bridge. Consideration of such changes should be disregarded and design of the structure should proceed as swiftly as possible based on the current horizontal and vertical alignments.

Item VI concerns computer programs developed in connection with the design of the bridge. We discussed this matter with our Legal Section, and it is their opinion that Paragraph III, 3 of the original agreement entitles us to receive these programs. It is our intention to include an article in the pending supplemental agreement which will clarify this matter. We would appreciate receiving these programs as soon as possible.

Very truly yours,

Walter J Hart

Walter J. Hart
Bridge Engineer

RWE/ag
Attach.
cc E. S. Hunter w/attach.
Jack Sollis
P. M. Oakley
C. S. Gloyd w/attach.

RECEIVED
JUN 18 1974
OFFICE OF
ASSISTANT STATE HIGHWAY ENGINEER

A DIVISION OF THE DEPARTMENT OF TRANSPORTATION

FORM 81-734-3030

# OREGON STATE HIGHWAY DIVISION

FILE:

INTER-OFFICE CORRESPONDENCE
Salem, Oregon
June 17, 1974

FROM: R. W. Ellison
R.W. Ellison

TO: Memo to File

SUBJECT: Columbia River (I-205) Bridge
Bridge No. 9555
Meeting with Consultant
at Bellevue, Washington

On June 10, 11 and 12, Dettmar Jones of the Oregon State Highway Division Finance Section, and Phil Rabb, Phil Oakley, Bob Ellison of Oregon State Highway Bridge Section, visited the Bellevue, Washington, office of Sverdrup & Parcel, the consultant designing the I-205 Columbia River Bridge, for the purpose of verifying work covered by the supplemental consulting agreement now being negotiated. Dettmar Jones audited various accounting records to verify certain wage rates claimed by the consultant and to verify work hour totals claimed for various phases of work performed. A separate report will be submitted by Mr. Jones. Phil Rabb reviewed the computer programs developed by the consultant for design of this structure and will submit a separate report. Phil Oakley reviewed the consultant's design calculation books drawings, and other items relative to certain design work which must be redone because of the addition of a bike path to the original structure and the future addition of a southerly extension to the original structure. Mr. Oakley will submit a separate report regarding this review.

Bob Ellison discussed various items with Jack Allen of S&P as follows:

I. Sverdrup & Parcel needs the following information from the State in order to complete the bridge design:

    A. Washington Shore Section -- approximate spans 1 through 10.

        1. Water line for fire fighting on structure.

            a. Assumed to be a dry line.
            b. Location of water source, connection details, locks, etc.
            d. Fire district jurisdiction.

        2. Emergency Communications.

            a. Type system and mounting.
            b. Spacing, etc.
            c. Conduit and other equipment to be installed under bridge contract.

3. Lighting type and layout on approach to structure. This will allow coordinating lighting on structure with that on approach.

4. Exit numbers for exit signs to be mounted on bridge.

B. Main Spans -- approximate spans 10 through 14.

1. Information on location, etc., of water line for fire fighting similar to A-1 above.

C. Oregon Section -- approximate spans 14 through 26.

1. Decision on alternate to be used for future southerly extension of the structure.

a. Cannot redesign to accommodate extension until decision made.
b. Cannot determine span lengths and hinge locations until decision made.

II. Design and redesign work by S&P is being confined to the Washington Section and the main spans until the State determines the extension alternate to be used.

III. S&P is concerned about talk of a possible change in horizontal and vertical alignment. Such changes would cause any redesign work based on present alignment to be redesigned again after the alignment change is made. S&P needs diredtion, should they proceed "full bore" based on present alignment or should they delay until they receive definite information on whether or not there will be any alignment change? Alignment changes will have some affect on the Washington Section with changes in grade, super, and deck drainage.

IV. The Washington Section is of conventional prestressed post-tensioned design. It is possible that the south end of the Oregon Section (north side of Government Island) will be conventional prestressed, post-tensioned design if a fill is used on Government Island as part of the future extension.

V. S&P will soon provide us with a schedule of the estimated dates of when they will provide the State with portions of the design for checking. A very rough estimate of such a schedule includes portions of the Washington approach submitted for checking beginning in approximately 30 days and the Oregon Section being submitted beginning in mid 1975 at the earliest.

VI. Jack Allen said he would check with his St. Louis office and let us know when they would be able to furnish us with copies of the computer programs they have developed in connection with the design of the bridge. Ellison told him that the State is interested mainly in the program for the continuous cast-in-place post-tensioned girder, and the two programs for segmental prestressed concrete bridges.

On June 13, 1974, Jack Allen called and informed Bob Ellison that Mr. West, an official of S&P, is of the opinion that the program for continuous cast-in-place post-tensioned girder is the consultant's property and he has no obligation to give it to the State. Jack Allen didn't have the final word on their decision for the other two programs but thought it would be the same. Ellison suggested that S&P review paragraph III, 3 of the original agreement. Jack Allen said they had and believe it supports their position.

VII. S&P will submit a report on test pile and plate load tests in approximately 30-60 days.

VIII.S&P will submit a foundation report showing recommended foundation for all piers within 90 days. The State should approve the foundation report or revise as necessary as soon as possible in order that design work may proceed in an orderly manner. At this time it appears that spread footings will be recommended for all Washington Section piers.

The Oregon State Highway Division personnel visiting the S&P Bellevue office were treated very cordially by S&P personnel and allowed to inspect all documents, program information, etc. they desired. A conference call allowed additional information to be received verbally from personnel in the S&P St. Louis office.

RWE:kp

cc Jack Sollis
Philip Oakley
Phil Rabb
Dettmar Jones

5/15 [illegible]

**OREGON STATE**
**HIGHWAY DIVISION**

HIGHWAY BUILDING • SALEM, OREGON • 97310

TOM McCALL
GOVERNOR

F. B. KLABOE
Administrator of Highways

May 14, 1974

NOTED
E. S. HUNTER

Mr. George H. Andrews, Director
Washington Department of Highways
Highway Administration Building
Olympia, WA 98504

Dear Mr. Andrews:

Columbia River (I-205) Bridge
Bridge No. 9555
Consulting Design Agreement Supplement

We are currently negotiating with Sverdrup & Parcel, design consultants on the subject structure, on a supplement to the original design agreement to cover certain additional work. This work is confined to the original length structure and includes redesign of the structure to accommodate a bike path, design of the bike path, redesign of the southerly end of the structure to accept an extension, realignment of columns for piers 4 - 7, and production of separate contract documents for the work on the Washington shore.

A copy of our report to the Federal Highway Administration indicating progress to date is attached for your information. Any comments you may have will be appreciated.

A preliminary copy of the supplemental agreement will be forwarded for your comments in the near future.

Very truly yours,

Walter J. Hart
Bridge Engineer
By

R. W. Ellison
Bridge Administration Engineer

RWE:dh
Enclosure

cc E. S. Hunter
R. L. Carroll, State of Washington
W. J. Hart

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**HIGHWAY DIVISION**

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TOM McCALL
GOVERNOR

F. B. KLABOE
Administrator of Highways

May 13, 1974

NOTED
E. S. HUNTER

Mr. R. Jack Allen
Sverdrup & Parcel and Associates, Inc.
P O Box 369
505 106th N.E.
Bellevue, WA 98004

Dear Mr. Allen:

Columbia River (I-205) Bridge
Bridge 9555
Proposal for Engineering Services

This is to advise you, as discussed in our recent telephone conversation, that since the present agreement is to cover only the design of the original bridge length, the final design costs for the Oregon bicycle access ramp should be deleted from your proposal. Any work done in developing the ramp should be retained, however, as it is reimbursable at this time.

Very truly yours,
ORIGINAL SIGNED
[illegible] ELLISON
Walter J. Hart
Bridge Engineer

PMO/ag

cc E. S. Hunter

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**OREGON STATE HIGHWAY DIVISION**

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TOM McCALL
GOVERNOR

F. B. KLABOE
Administrator of Highways

May 2, 1974

NOTED
E. S. HUNTER

Mr. R. Jack Allen, P.E.
Sverdrup & Parcel and Associates, Inc.
P O Box 369
505 106th NE
Bellevue, Washington 98004

Dear Sir:

Columbia River (I-205) Bridge
Bridge 9555
Bridge Railing

We concur with your recommendation that the surface treatment as proposed by the State of Washington be used for both the exterior rail faces and the faces adjacent to the bike path.

Very truly yours,

ORIGINAL SIGNED
WALTER J. HART

Walter J. Hart
Bridge Engineer

PMO/ag

cc E. S. Hunter
R. N. Bothman
C. S. Gloyd
R. L. Carroll
G. L. Green

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UNITED STATES GOVERNMENT

*Memorandum*

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
Box 300 - Salem OR 97308

DATE: April 16, 1974

In reply refer to: 10-41-EC2

SUBJECT: Oregon Project I-205-7(2)303
Columbia River Bridge Section
Proposed Supplement to Design Consultant Agreement

FROM : G. L. Green, Division Engineer

TO : Mr. F. B. Klaboe, Administrator & State Highway Engineer

The provisions to be incorporated in the proposed supplemental agreement to the Sverdrup & Parcel and Associates, Inc. consultant agreement as described in Mr. Schroeder's April 15 letter are satisfactory.

We assume that the supplemental agreement will be written so that a careful division can be maintained between that work already authorized and that additional work added by the supplement.

for G. L. Green

NOTED
E. S. HUNTER
4-23-74
cc Hart

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Hunter
FOR

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NOTED
A. E. JOHNSON

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ASSISTANT STATE HIGHWAY ENGINEER

NOTED
R. L. SCHROEDER

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APR 19 1974
Office of
Assistant State Highway Engineer

8905
Consult.

April 15, 1974

Mr. Glen L. Green, Division Engineer
Federal Highway Administration
Post Office Box 308
Salem, Oregon 97308

Dear Mr. Green:

Columbia River (I-205) Bridge
Bridge No. 9555
Supplemental Consulting Agreement
Provisions

On September 30, 1970 we entered into an agreement with the consulting engineering firm of Sverdrup & Parcel for design of the I-205 bridge across the Columbia River at Portland, Oregon.

Since that time a bicycle path has been added to the structure and the structure extended to the south shore of the south channel. The extension is a result of the Port of Portland's abandonment of the airport expansion project which would have provided for the highway with a fill across the south channel. Both of these changes have caused additional work and project delays. This additional work includes bike path feasibility studies, test pile programs and a structure extension feasibility study. These items are the subjects of previous supplements to the original agreement.

We are now in the process of preparing an additional supplemental agreement to cover the redesign of the original structure to accommodate the bike path, design of the bike path itself, and redesign of the structure to provide piers parallel to the river flow. The last item is necessary because abandonment of the south channel fill will alter river flow characteristics.

We intend including provisions in this supplement which will allow full payment to the consultant for work under the previous supplemental agreements when all work covered by the supplement is completed and the work approved. Currently such work is considered to be part of the original agreement and subject to a 10 percent retainage.

Because of delays imposed by litigation involving the originally prepared airport expansion fill and subsequent abandonment of same, the estimated date of completion for work covered by the original agreement has long passed. This leaves the consultant in the unforeseen situation of having his funds (retainage) tied up for an extended period of time. In order to obtain a more equitable financial situation, we intend to include provisions in this supplement which will allow a reduction in retainage from 10 percent to 3 percent for all work covered by the original agreement and performed prior to August 1, 1973. August 1973 is chosen as a limiting date because it is well past any completion date which can be estimated from the various elapsed time limits for the different phases of work as shown in the original agreement.

Your prior approval of the above-described provisions is requested.

Very truly yours,

E. S. Hunter
Assistant State Highway Engineer

RWE:dh jf

bc: F. B. Klaboe
A. E. Johnson
L. W. Rulien
W. J. Hart
V. E. Skoog

8905

Consult

E S Hunter

STATE OF OREGON
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**OREGON STATE**
**HIGHWAY DIVISION**

HIGHWAY BUILDING • SALEM, OREGON • 97310

TOM McCALL
GOVERNOR

F. B. KLABOE
Administrator of Highways

April 10, 1974

Mr. R. Jack Allen
Sverdrup & Parcel and Associates, Inc.
P O Box 369
505 106th NE
Bellevue, WA 98004

NOTED
E. S. HUNTER

Dear Mr. Allen:

Columbia River (I-205) Bridge
Glory Hole Excavation
Bridge 9555

To date we have received favorable comment on "glory hole" excavation from the following agencies: Oregon Fish Commission, Oregon Department of Environmental Quality, Oregon Wildlife Commission, U. S. Bureau of Sport Fisheries and Wildlife, U. S. National Fisheries Service, Washington Department of Fisheries, and Washington Department of Game. Their approval is subject to certain construction restrictions as summarized below.

1. Excavation spoil piles shall be removed prior to completion of the pier by backfilling against the pier.

2. Excavation work in the water shall be limited to a maximum of 3 piers at a time for the main river channel plus 3 piers at a time for the south channel.

3. Excavation within 200 feet of a shore line shall not be done during the months of March, April and May unless approved by appropriate agencies.

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4. Use of precast type piers (precast concrete shells filled with tremie concrete) is satisfactory.

5. Precast piers to be sealed around the bottom and at joints between sections to prevent leakage of tremie concrete into the river.

6. Make underwater inspection of seals as necessary to insure adequacy.

The above conditions should be considered when preparing the final plans and specifications.

We are enclosing copies of the letters for your study.

It is anticipated that approval by the Washington Department of Ecology will be received in the near future.

Very truly yours,

ORIGINAL SIGNED
R.W. ALLISON

Walter J. Hart
Bridge Engineer

PMO/ag
Attachs.

cc C. S. Gloyd
R. L. Carroll
A. E. Johnson
E. S. Hunter
R. N. Bothman
G. L. Green

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**HIGHWAY DIVISION**

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TOM McCALL
GOVERNOR

F. B. KLABOE
Administrator of Highways

April 1, 1974

NOTED
E. S. HUNTER

Mr. R. Jack Allen
Sverdrup & Parcel and Associates, Inc.
P O Box 369
Bellevue, Washington 98004

Dear Mr. Allen:

General Plan and Design Criteria
Washington Approach Spans
Columbia River (I-205) Bridge

The enclosed letter received from the State of Washington indicates their approval of the general plans and design criteria for the Washington approach spans submitted with your letter of February 28, 1974, except for the end slopes as noted.

We concur with their approval and agree that their suggestions should be considered when drawing the final plans.

Very truly yours,

[illegible]
WALTER J. HART

Walter J. Hart
Bridge Engineer

PMO/ag

cc C. S. Gloyd
R. L. Carroll
~~E. S. Hunter~~
G. L. Green

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TOM McCALL
GOVERNOR

F. B. KLABOE
Administrator of Highways

March 28, 1974

TO Mr. Glen L. Green
Division Engineer
Federal Highway Administration

ORIGINAL SIGNED
WALTER J. HART

FROM Walter J. Hart
Bridge Engineer

NOTED
E. S. HUNTER

SUBJECT Columbia River (I-205) Bridge
Extension Study
Bridge No. 9555

There is a typographical error on page 19 of Sverdrup & Parcel's Extension Study. In the second sentence of the third paragraph, delete "not" and insert "now". The sentence will then read "...cantilever construction over water will now be over low-lying land..." Please make this correction on your copies.

CC C. S. Gloyd
R. L. Carroll
R. N. Bothman
E. S. Hunter
A. E. Johnson

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TOM McCALL
GOVERNOR

F. B. KLABOE
Administrator of Highways

March 27, 1974

TO Mr. Glen L. Green
Division Engineer
Federal Highway Administration
Salem, OR

NOTED
E. S. HUNTER

ORIGINAL SIGNED
WALTER J. HART

FROM Walter J. Hart
Bridge Engineer

SUBJECT Columbia River (I-205) Bridge
Extension Study
Bridge No. 9555

Enclosed are five copies of Sverdrup & Parcel's report on the southerly extension of the proposed Columbia River (I-205) Bridge.

As indicated to you in previous discussion, our preference is the minimum embankment alternate, Alternate 2 in the report.

These copies are being sent to you for your review and comment. We would appreciate those comments by April 15 in order that a decision may be made on the direction in which this project should proceed.

WJH:dh
Enclosure (copies 5, 6, 7, 8, 9)

cc C. S. Gloyd/w/ encl. (copies 10, 11)
R. L. Carroll /w/ encl. (copy 12)
R. N. Bothman /w/ encl. (copy 13)
E. S. Hunter /w/ encl. (copy 3)

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OFFICE OF
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# REPORT ON THE
# SOUTHERLY EXTENSION
# OF THE PROPOSED
# I-205 COLUMBIA RIVER BRIDGE

Prepared for

OREGON STATE DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION

March, 1974

By

SVERDRUP & PARCEL AND ASSOCIATES, INC.
Consulting Engineers

REGISTERED PROFESSIONAL ENGINEER
4166
R.D. Bane
OREGON
SEP. 6, 1957
RAYMOND D. BANE

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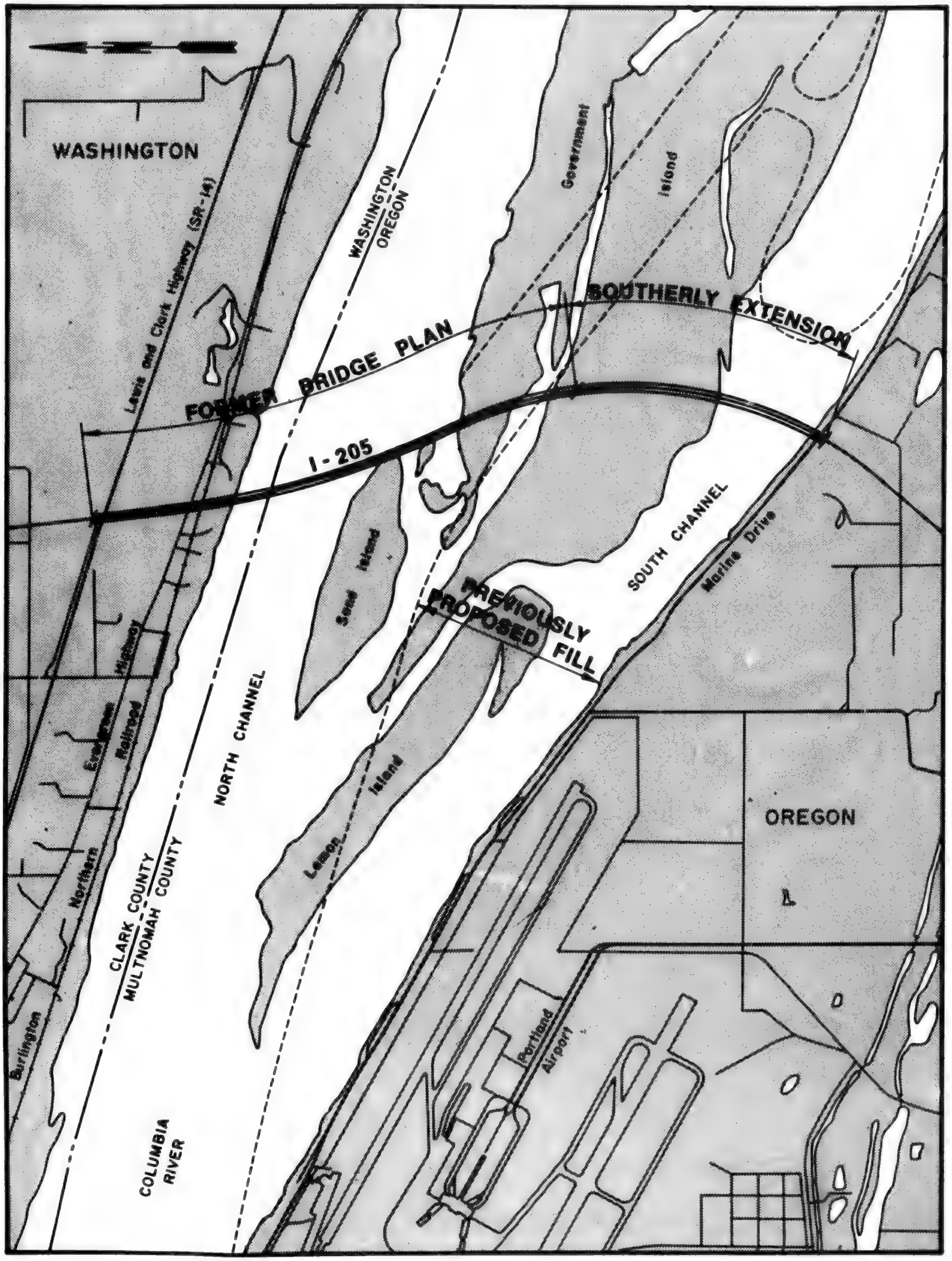
WASHINGTON
Lewis and Clark Highway (SR-14)
WASHINGTON
OREGON
Government
Island
SOUTHERLY EXTENSION
FORMER BRIDGE PLAN
I-205
Sand Island
SOUTH CHANNEL
Marine Drive
PREVIOUSLY PROPOSED FILL
Evergreen Highway
Burlington Northern Railroad
NORTH CHANNEL
Lemon Island
OREGON
CLARK COUNTY
MULTNOMAH COUNTY
Portland Airport
COLUMBIA RIVER

VICINITY MAP

# FOREWORD

This report is submitted in fulfillment of a Supplemental Agreement dated November 21, 1973, between the Oregon State Department of Transportation, Highway Division, and Sverdrup & Parcel and Associates, Inc., Consulting Engineers.

The report presents three preliminary designs for a southerly extension of the proposed I-205 Columbia River Bridge. One design is for an all-structure extension; the other two are combinations of structure and embankment sections.

# SUMMARY

Three alternative schemes for extending the proposed I-205 Columbia River bridge some 4, 000 feet beyond its originally designed terminus on Government Island are studied in this report. This extension is made necessary by changes in expansion planning for the Portland International Airport, and does not affect the bridge concepts north of the original terminus on Government Island.

Alternative 1 is an all-structure solution to carry I-205 across the Columbia River small-boat channel to a point just south of Marine Drive in Portland. Alternatives 2 and 3 propose different amounts of fill embankment on Government Island, with accordingly different structure lengths to carry I-205 across the small-boat channel to the bridge terminus just south of Marine Drive.

The alternatives are compared for esthetics, construction cost, hydraulic effects, and time schedule. Each is superior to the others in one or more of the points of comparison. Alternative 3 is the recommended solution based upon its lowest cost and shortest construction time.

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# I INTRODUCTION

Preliminary design of a bridge to carry Route I-205 across the Columbia River near Portland, Oregon, and Vancouver, Washington, was started in October, 1970. The Preliminary Design Report recommended prestressed concrete box girder construction and was completed in April, 1971. A Supplemental Study dated August 12, 1971, led to selection of a superstructure cross-section and pier shape. Final design of the bridge was started in October, 1971, and the addition of a pedestrian-bike path to the bridge was authorized in August, 1973.

Bridge location and alignment were formerly planned for compatibility with a proposed expansion of nearby Portland International Airport. Included in this expansion was the construction of a new airport runway on fill material placed in the river. Fill material was to have been dredged from the north channel and placed in the south channel. The 7,660-foot long bridge would have extended from Sta. 8+40 on the Washington shore across the river and terminated at Sta. 85+00 on the airport fill which would then carry I-205 to the Oregon shore. This former bridge plan is shown on Plate 1.

The plan to construct a new runway on fill material in the river has recently been abandoned, at least for the foreseeable future, and therefore the proposed I-205 river crossing must be extended approximately 4,070 feet to the Oregon shore. This report presents studies of three alternative layouts for the extended river crossing.

For that portion of I-205 passing over Government Island, alternative embankment and all-structure layouts have been investigated. A preliminary design of the embankment sections is included herein.

Certain concepts such as alignment, roadway section, and structural systems were established by the previous studies and these have been used as the basis for design of the extended river crossing.

Changes in the hydraulic characteristics of the Columbia River were determined by Bauer Engineering, Inc., for each of the three alternative layouts. These analyses are presented in a separate report entitled, "Hydraulic Studies."

Subsurface conditions along the southerly extension of the I-205 crossing were explored by Cornell, Howland, Hayes &

Merryfield and the results presented in a separate report entitled, "Preliminary Foundation Investigation." This supplements the foundation investigation conducted for the former bridge plan.

Architectural features were reviewed by the firm of Broome, Selig, Oringdulph & Partners, and consulting services for construction aspects were provided by Ben C. Gerwick, Jr.

## II ESTABLISHED CONCEPTS

Previous design work for the I-205 crossing of the Columbia River has resulted in the establishment of certain concepts which are utilized in these studies of an extended crossing.

### A. Alignment

Horizontal and vertical alignment is shown on Plate 2. On the Washington bank, clearance is provided under the bridge for the Lewis and Clark Highway (SR-14), Evergreen Highway, and a Burlington Northern railroad track. In the river the bridge spans the main navigation channel and a channel for small boats.

As shown on the former bridge plan, Plate 1, Marine Drive on the Oregon bank would have been relocated to pass under the bridge. It will be spanned near its present location by the extended crossing.

Clearance is also furnished over the bridge for glide paths to runways of Portland International Airport.

### B. Roadway

The bridge provides two 68-foot vehicular roadways, with each consisting of four 12-foot traffic lanes and two 10-foot shoulders, see Plate 1. The two roadways are separated by a 12-foot median which provides for a pedestrian-bicycle path approximately 8 feet wide. The roadways are widened at each end of the bridge to accommodate interchange ramps.

Concrete traffic railings are planned for the outside edge of each roadway. Combination railings, consisting of steel pedestrian railings mounted on concrete traffic railings, separate pedestrian and bicycle traffic in the median from the vehicular roadways.

## C. Bridge Superstructure

The bridge superstructure consists of dual, prestressed concrete box girders as shown on Plate 1. A concrete slab for the pedestrian-bike path spans between the box girders. The transversely prestressed roadway slabs cantilever beyond the box girder fasciae which are sloped 4 to 1.

Spans over land are designed to be built on falsework. Over water, where the cost and risk of falsework is prohibitive, spans are designed for precast segmental cantilever construction. Some of the factors which favor precast over cast-in-place segmental construction are the existence of adequate nearby casting sites accessible to the water, the availability of large floating derricks for high, heavy lifts, relatively calm water conditions for delivery of precast segments, and extensive repetition of segments.

## D. Bridge Substructure

Except near each end of the bridge where the roadways are widened, the substructure is a single column for each of the dual bridges, see Plate 1. The column cross-section is circular at the top and transitions to oblong near the bottom. A circular fillet forms a column capital.

It is presently planned to found abutments on 50-ton capacity friction piles and the northernmost three piers on 100-ton capacity bearing piles. The remainder of the pier foundations on the Washington shore are spread footings on a dense conglomerate. Except for the two piers flanking the main navigation channel, river piers are founded on 200-ton capacity bearing piles.

Bases for river piers will be either built inside sheet pile cofferdams or constructed of precast concrete shells set in an open excavation. Final selection of foundation types will be made after completion of a test pile program now underway.

## III HYDRAULIC STUDIES

Analyses of potential hydraulic impacts were prepared by Bauer Engineering, Inc., and are presented in a separate report entitled, "Hydraulic Studies, I-205 Columbia River Bridge."

At the bridge site, the river is divided by Government Island into two channels. Should the proposed construction alter the present division of flow between the channels, scouring potential and sediment transportation capacity of the channels would be affected. Such changes are hydraulically undesirable and therefore the alternative bridge configurations are designed to maintain the present division of flow.

Three alternative configurations of the river crossing are analyzed in detail to determine changes in hydraulic characteristics. They include an all-structure scheme, Alternative 1, and two combinations of embankment sections with structure sections, Alternatives 2 and 3. The three configurations are shown on Plates 4, 5 and 6 and are described further in Chapter VI.

From a hydraulic viewpoint, none of the three alternatives would have an adverse effect on the Columbia River. However, construction of Alternative 3 might cause a noticeable increase in the scouring potential in the reach immediately downstream. Some type of erosion control protection should be considered to protect a very small area of the Washington shore near the bridge.

Conclusions drawn in the hydraulic studies are as follows:

1. The results of hydraulic analyses on the existing channel using the one-dimensional analysis agree fairly well with those observed in the field, implying the established mathematical model had an acceptable level of accuracy.

2. There is no noticeable adverse effect expected on navigation, shoreline erosion or flood stage due to construction of the proposed Alternative 1 or 2 bridge.

3. Slightly noticeable adverse effects on the flood stage would be expected from the construction of the proposed Alternative 3 bridge. However, the increment in the flood stage in the reach immediately upstream of the proposed bridge would be on the order of 0.2 feet during the 100-year flood, which may be acceptable. This effect would gradually decrease in the reach farther upstream. No adverse effects are expected with respect to shoreline erosion or navigation.

4. The materials for the construction of embankments for Alternatives 2 and 3 can be dredged from the bottom of the river within the reach one-half mile each upstream and downstream of the proposed bridge. The unbalanced sediment transportation capacity between the borrow area and its immediate upstream reach is expected to be adjusted through natural sediment transportation processes.

5. The velocity directly under the bridge, where the existing navigation channel lies, is estimated to be 4 ft/sec. under a 100-year flood. Interference of navigation is not expected to occur under any conditions.

## IV FOUNDATION INVESTIGATION

As part of earlier planning for the I-205 crossing of the Columbia River, a preliminary foundation investigation was completed in 1971 by the firm of Cornell, Howland, Hayes & Merryfield. That investigation extended from the vicinity of the Lewis and Clark Highway on the Washington shore to the northern bank of Government Island in the river, the former bridge limits.

A supplementary investigation was conducted by $CH_2M$ late in 1973, and the results are presented in a separate report entitled, "Preliminary Foundation Investigation, I-205 Columbia River Bridge (South Channel Extension)." The I-205 alignment from the northern bank of Government Island to Marine Drive on the Oregon shore is covered by this $CH_2M$ supplementary investigation which includes the following design recommendations:

Government Island (Borings 38 through 42)

1. Friction piles driven to the required penetration and resistance in the river sands or end bearing piles driven to refusal on the dense conglomerate layer of the Troutdale formation. Results of the pile load tests to be performed will influence this choice.

2. Steel H piles or prestressed concrete piles, depending on the choice of end bearing or friction piles.

3. Alternate design of embankment section is technically feasible. Remove all silt and clay foundation material before embankment construction. Construct embankment of sand, with 2.5:1 slopes. Compact sand to 80 percent relative density, stabilize slopes for surface erosion.

South Channel (Borings 43 through 47)

1. End bearing piles driven to refusal on very dense conglomerate member of Troutdale formation.

2. Nondisplacement steel H piles are recommended for driving to refusal.

South Channel (Borings 48 through 51)

1. Friction piles driven to the required penetration and resistance in the river-deposit sand. Type of pile (Steel H or prestressed concrete) to be selected based on results of pile load tests to be performed.

2. Steel H piles are attractive because of their flexibility. They can be easily cut off under water, and the cutoffs are salvageable. No jetting should be used.

## Oregon Flood Plain and South Abutment (Borings 52 through 54)

1. Friction piles driven through the compressible layers of the flood plain into the river sands and through the completed approach embankment, after the embankment settlement has taken place. Settlement of the approach embankment should be monitored.

2. Type of pile (steel H or prestressed concrete) to be selected based on results of pile load tests. No jetting should be used.

# V EMBANKMENT DESIGN

Construction of an embankment can be considered an alternate to a bridge across Government Island. Granular material can be dredged from the river for construction of the embankment and rock, for slope protection, is available in nearby quarries.

In the following paragraphs an embankment section is discussed with respect to stability under dynamic loads and flood conditions. Construction methods and the Environmental Protection Agency's requirements are also discussed.

## A. Embankment Section

A typical cross-section through the embankment is shown on Plate 3. The crown width is 152 feet, side slopes are 2.5 to 1, average base width is about 400 feet, and average height is about 50 feet. The roadway section will be the same as on the bridge except an additional two feet of width is required on the outside edges of embankment to support guard rails. The following is an analysis of the embankment section:

### 1. Dynamic Considerations

The maximum probable earthquake in this area is estimated to be of Intensity VII on the modified-Mercalli scale. The soil response to this size earthquake could be computed by a stress analysis with an assumed induced acceleration at bedrock or with an estimated dynamic acceleration chosen for its similarity to the structural design criteria. The latter method was selected for its directness.

The proposed bridge structure is designed to withstand an equivalent static lateral load similar to that from a California Division of Highways criteria used prior to 1971 but less than the lateral load from their current criteria. Using the dynamic properties of the soil, it is estimated that a dynamic acceleration of 0.12g applied to the embankment is approximately equivalent to the design criteria used for the structure.

Under earthquake conditions, the type of sand in the Columbia River flood plain is susceptible to liquefaction, a quicksand condition caused by an increase in pore pressure under cyclic loading. Using the procedures recommended by Seed and Idrise in ASCE Journal of Soil Mechanics and Foundations, September, 1971, it is estimated that liquefaction at the project site may occur at an acceleration of 0.16g or greater. Therefore, this condition is not likely to occur with the assumed value of dynamic acceleration.

2. Settlement

The soils on Government Island, consisting of silt, fine sand, and pockets of low plastic clay, are erratic. It is predicted that the total settlement of these deposits under the proposed embankment will be about one foot. Most of this settlement will take place during construction. One month after completion of the embankment, about one inch of settlement will remain.

3. Stability

The embankment is highest at about Station 79+40 in the north channel. The static Factor of Safety (F. S.) is 1.46 for a 2.5 to 1 slope during a 100-year flood with the loose sediments removed. The dynamic F. S. = 1.01 for an acceleration of 0.12g and the water level at Elevation 20. This corresponds to the maximum probable earthquake occuring simultaneously with a two-year flood. Should the water level be higher at the time of such an earthquake, the F. S. would be less than one. Slopes flatter than 2.5 to 1 would be required for stability under this condition.

The sand embankment will drain rapidly and it is anticipated that a rapid drawdown condition will not occur. However, even if it were to occur, the drawdown from a 100-year flood would have to be 29± feet to cause instability.

Stability was also investigated at Station 93+50 on Government Island. The static F. S. is 1.48 for undrained conditions during a two-year flood. Long-term stability has F. S. of 1.73 and 1.65 for 2-year and 100-year flood stages, respectively. The dynamic

F. S. = 1.13 under drained conditions for an acceleration of 0.12g occuring simultaneously with a two-year flood.

Based on the above, side slopes of 2.5 to 1 are recommended for the embankment section.

### 4. Revetment and Underwater Retention Mounds

In the zone below high water, the embankment will be faced with a layer of stone (riprap) for protection against stream erosion and wave action. The riprap will be a minimum of eighteen inches thick with at least 40 percent of the stone six inches or larger. Maximum stone size will be twelve inches. The riprap will be dumped on a retention mound consisting of armor stone. This armor stone will range in size from 1/2 to six inches. A filter blanket, one foot thick, composed of well-graded sand and gravel from 1/32 of an inch to a maximum size of three inches will be placed between the armor stone and hydraulic fill.

## B. Environmental Protection Agency's Requirements

Stage construction of the embankment section is recommended to comply with the Environmental Protection Agency's considerations on water quality control. Briefly, the EPA recommends that dredged materials be retained and settled in a basin formed by retention mounds. These mounds are to be designed to safely contain both the liquid and solid loads predicted. After the solids have settled out, the water is to be conveyed from the basin through an adjustable outlet structure. The turbidity of the effluent is to meet water quality standards.

### C. Embankment Construction

The method of embankment construction for this project has been developed in accordance with EPA requirements. Retention mounds consisting of armor stone, filter material, and riprap will be placed below high water to retain the hydraulic fill. Above high water, retention mounds consisting of sound borrow material will be constructed along the outside face. The mounds for the various lifts of fill will be constructed to an elevation that will provide for structural stability, erosion control, and adequate pond capacity to contain the maximum predicted solids plus liquid load without danger of overtopping or structural failure. Multiple outlet structures will be provided and separated sufficiently to disperse currents. Adjustable structures will be used which can be elevated for each lift of hydraulic fill. They will be set to an elevation which will provide sufficient pool capacity to give the retention time necessary to meet water quality standards with the fill at the maximum fill level. Waste water return ditches outside the toe of fill will be provided to discharge the flow from the outlet structures. These ditches will be lined with rock to protect against erosion and scouring.

As much of the embankment construction below high water as is possible will be done during periods of low water. When placement of material in open water is unavoidable, provisions will be made to confine the operation within the project area. Operations in this area will be carried out in such a manner as to comply with water quality standards.

## D. Dredging Operations

Dredging operations in the river will comply with applicable State and Federal Water Quality Standards to minimize pollution effects. Areas will be selected for dredging that will cause minimum damage to aquatic organisms and bottom fauna and flora.

# VI ALTERNATIVE EXTENSIONS

The three schemes investigated in detail include an all-structure scheme and two combinations of embankment sections with structure sections.

Limits of the embankment sections were chosen to preserve the present division of flow between the north and south channels of the river as noted in Chapter III. The embankment design is described in Chapter V.

The span layouts for the structure sections are based on previous analyses for the Former Bridge Plan, Plate 1. North of Government Island, the span layouts are identical with the former plan except for realigning river piers. This was done to conform to the direction of flow which will be different in the absence of the previously proposed airport fill in the river. North river channel dredging will no longer be required to obtain material for the airport fill. Consequently, some spans which were planned for segmental, cantilever construction over water will not be over low-lying land and may be designed for construction on falsework.

The bridge pier foundations on the Washington shore and in the river will be as described in Chapter II for the Former

Bridge Plan. On Government Island, piers will be founded on 200-ton-capacity bearing-piles and footings will be constructed by conventional land methods.

It is presently planned to locate piers in the north channel at the same elevation as in the former bridge plan. This will permit future dredging of the north channel should plans for building a runway in the river be reactivated.

## A. Alternative 1, All-Structure

Alternative 1 will use bridge structure for the entire 11,730-foot-long river crossing as shown on Plate 4. It is identical to the former plan north of Station 82 except for pier realignment.

In the extension, spans will be arranged in groups nominally 240-, 200-, and 180-feet long. Some cost savings might be realized by using less than 240-foot span lengths over Government Island where foundation costs are less than in the river. However, the resulting maze of columns would be undesirable esthetically.

The ten spans on the Washington shore, about thirteen spans on Government Island, and two spans on the Oregon shore will be designed to be constructed on falsework. The remaining spans over the north and south river channels will be designed for construction by the segmental cantilever method.

## B. Alternative 2, Minimum Embankment

Alternative 2, shown on Plate 5, is a combination of structure over the two river channels separated by an embankment section on Government Island. The total length of bridge structure is 10,575 feet comprised of 7,580 feet north of the embankment and 2,995 feet south of the embankment.

The 1,155-foot-long embankment section is considered to be the minimum appropriate length for this crossing. It only extends over the higher, wooded portion of the island and has a height averaging about 45 feet. Material dredged from the river and placed hydraulically will be used to construct the embankment as described in Chapter V.

Lengths of bridge spans are similar to those for Alternative 1. They have been adjusted to meet the selected embankment limits and the two spans adjacent to each end of the embankment are shortened to improve the appearance. Over land on the Washington and Oregon shores and on Government Island, spans will be designed to be built on falsework. Over water in the north and south channels, segmental cantilever construction will be used.

## C. Alternative 3, Maximum Embankment

Plate 6 illustrates Alternative 3 which is also a combination of structure over the river channels and embankment over Government Island. North and south of the embankment, lengths of bridge structure are 6, 530 feet and 2, 195 feet, respectively, for a total structure length of 8, 725 feet.

In this scheme, the 3, 005-foot-long embankment section extends into the low-lying sandbar areas north and south of the higher, wooded part of the island. This is considered to be the maximum length of embankment which can be used without undue blockage of the river. It averages 55 feet in height and will be constructed with material dredged from the river.

The span lengths are similar to those of Alternatives 1 and 2; they have been adjusted to meet the selected embankment limits.

## VII ARCHITECTURAL FEATURES

As discussed in Chapter II, many of the bridge concepts have been established prior to these studies. The assessment of esthetics has been made within the framework of these previously established concepts such as horizontal alignment, vertical alignment, roadway configuration, type of construction, superstructure cross-section, and column shape.

Alternative 1 will use the established bridge concepts to provide an all-structure layout. The 240-foot span lengths over Government Island will be longer than usually associated with this height bridge over land. This will be done to avoid the appearance of anchoring the bridge to the island with a maze of columns. The use of bridge structure over the island will permit nearly unrestricted access between one end of the island and the other.

Alternatives 2 and 3 will include sections of embankment rather than structure over Government Island. If either of these schemes is selected the embankment should be widened, sculptured, and landscaped to avoid a heavy appearance; clusters of trees at each side of the bridge, on the embankment, would furnish a different and additional experience as the bridge is crossed. Moreover, consideration should be given to providing access either through or around the embankment if either Alternative 2 or Alternative 3 is selected.

The all-structure scheme might ordinarily be preferred, but Alternative 2, if provided with the embankment treatment described above, can become an integral part of the island. It will then be the esthetic choice for the I-205 crossing of the Columbia River. Alternative 3, even if landscaped, will effectively develop a visually objectionable dike from the south shore to the north shore of the island.

# VIII CONSTRUCTION

Two separate construction contracts are contemplated for the I-205 crossing of the Columbia River. Ten spans over the Washington shore, designed to be constructed on falsework, will constitute one contract; the remaining construction will be included in a second contract. Design of the Washington shore spans is presently underway and it is anticipated that their construction will precede construction of the remaining spans. This may require that some falsework placed during the first contract remain until closure of the interface span during the second contract.

## A. Time Schedule

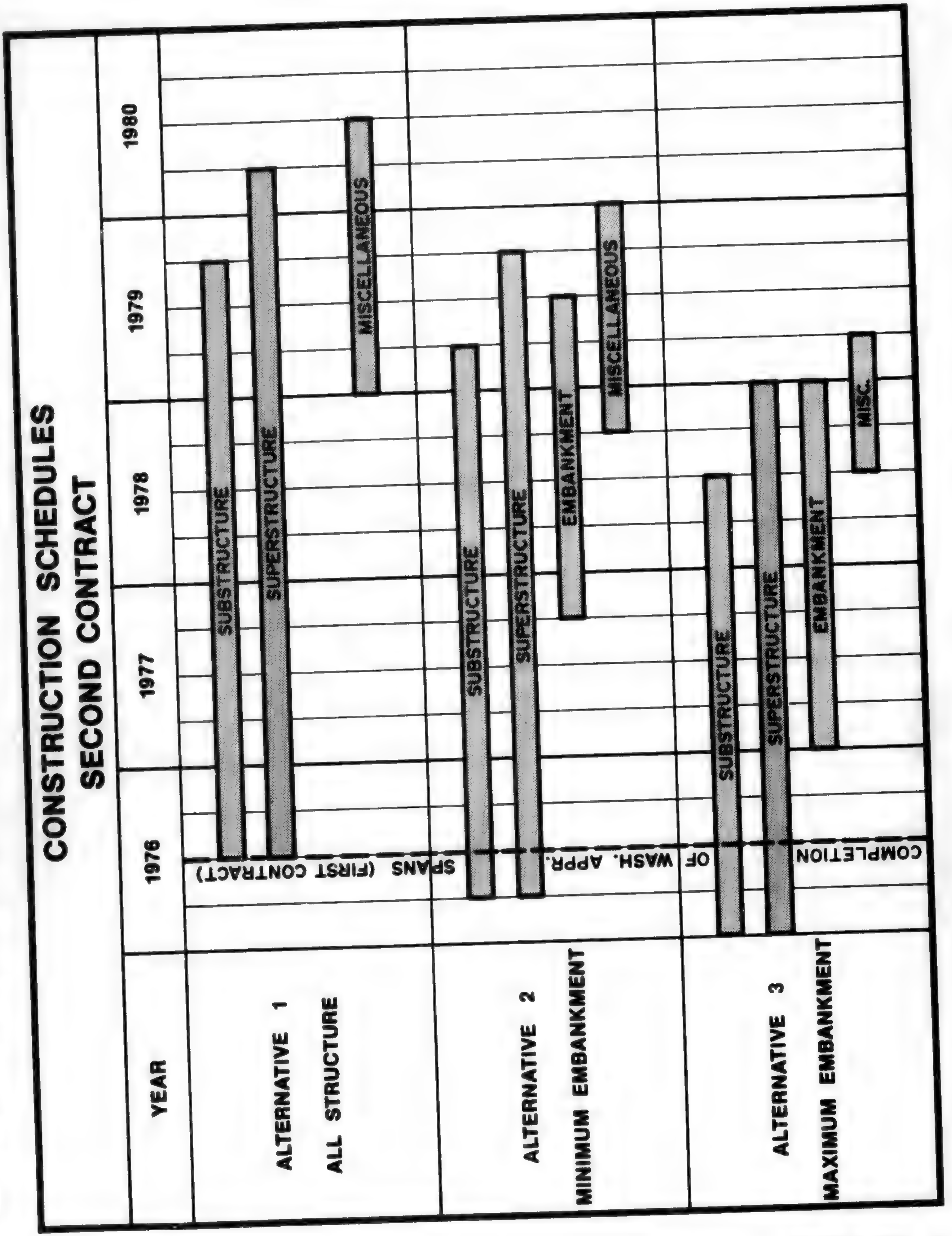
Time schedules for construction assume efficient contractors using the best techniques of construction practice and scheduling. It is also assumed that items such as signing, lighting, membrane waterproofing, and asphalt concrete overlay will be omitted from the first contract and included totally in the second contract. On this basis, approximately 18 months will be required for construction of the Washington shore spans. Assuming a start early in 1975, this first contract will be completed in about mid-1976.

For the second contract the required design times are approximately 21 months, Alternative 1; 18 months, Alternative 2; and

15 months, Alternative 3. On the basis of a mid-1974 design start and allowing three months after design completion, construction will start in mid-1976 for Alternative 1, early 1976 for Alternative 2, and beginning 1976 for Alternative 3.

Construction schedules for the second contract are shown for each of the three alternatives on Figure 1. Separate times are shown for substructure, superstructure, embankment, and miscellaneous. The latter includes signing, lighting, etc., for the entire bridge. For Alternative 1, mobilization is assumed to begin in mid-1976 and this includes preparation for manufacture of precast superstructure units as well as preparation for substructure construction. Construction of Alternative 2 or 3 will begin at earlier dates than Alternative 1 because of the shorter design schedules.

A construction time of 48 months for Alternative 1, 45 months for Alternative 2, and 39 months for Alternative 3 is estimated for the second contract. These times can be shortened but only with a large increase in construction cost.



CONSTRUCTION SCHEDULES
SECOND CONTRACT

**FIGURE 1**

## B. Estimated Costs

Estimates of construction costs for the entire 11,730-foot-long crossing are shown on Figure 2. The costs are based on current prices with no allowance for escalation; a 10-percent contingency is included.

The State line crosses I-205 at Station 35+53 dividing the total crossing length into 2,713 feet in Washington and 9,017 feet in Oregon. Separate construction costs are shown for the work in each state. Costs are also subdivided into items for superstructure, substructure, embankment, and miscellaneous. The latter includes lighting, signing, and fenders.

Estimated construction costs for the entire crossing are:

| | | |
|---|---|---|
| Alternative 1 | - | $120,000,000 |
| Alternative 2 | - | $111,100,000 |
| Alternative 3 | - | $100,100,000 |

## ESTIMATED CONSTRUCTION COSTS

| | ITEM | WASHINGTON | OREGON | TOTAL |
|---|---|---|---|---|
| ALTERNATIVE 1<br>ALL STRUCTURE | SUBSTRUCTURE | $ 9,400,000 | $ 28,000,000 | $ 37,400,000 |
| | SUPERSTRUCTURE | 17,100,000 | 52,400,000 | 69,500,000 |
| | MISCELLANEOUS | 900,000 | 1,300,000 | 2,200,000 |
| | 10% CONTINGENCIES | 2,700,000 | 8,200,000 | 10,900,000 |
| | TOTAL | $ 30,100,000 | $ 89,900,000 | $ 120,000,000 |
| ALTERNATIVE 2<br>MINIMUM EMBANKMENT | SUBSTRUCTURE | $ 9,400,000 | $ 23,900,000 | $ 33,300,000 |
| | SUPERSTRUCTURE | 17,100,000 | 46,600,000 | 63,700,000 |
| | EMBANKMENT | — | 1,800,000 | 1,800,000 |
| | MISCELLANEOUS | 900,000 | 1,300,000 | 2,200,000 |
| | 10% CONTINGENCIES | 2,700,000 | 7,400,000 | 10,100,000 |
| | TOTAL | $ 30,100,000 | $ 81,000,000 | $ 111,100,000 |
| ALTERNATIVE 3<br>MAXIMUM EMBANKMENT | SUBSTRUCTURE | $ 9,400,000 | $ 19,000,000 | $ 28,400,000 |
| | SUPERSTRUCTURE | 17,100,000 | 36,800,000 | 53,900,000 |
| | EMBANKMENT | — | 6,500,000 | 6,500,000 |
| | MISCELLANEOUS | 900,000 | 1,300,000 | 2,200,000 |
| | 10% CONTINGENCIES | 2,700,000 | 6,400,000 | 9,100,000 |
| | TOTAL | $ 30,100,000 | $ 70,000,000 | $ 100,100,000 |

**FIGURE 2**

## IX COMPARISON OF ALTERNATIVE EXTENSIONS

Three alternative schemes for a southerly extension to the I-205 Columbia River Bridge are presented and discussed herein. Each of the schemes satisfactorily serves the function of carrying I-205 across the river, over land transportation routes, and under the glide-path to the airport.

Alternative 1 has the advantage of minimum effect on the river since dredging of embankment material will not be required. Moreover, this all-structure scheme is esthetically acceptable and it permits almost unrestricted access between the north and south ends of Government Island. Its disadvantages are the highest cost and the longest time of construction of the three alternatives.

Alternative 2 will provide the best esthetic values if its embankment is shaped and landscaped. Although the dredging of embankment material will temporarily upset the equilibrium state of sediment transportation, no noticeable adverse effect is expected on shoreline erosion or flood stage. This minimum embankment scheme is estimated to cost $8,900,00 less than Alternative 1 and its construction can be completed six months earlier. Alternative 2 has the disadvantage of restricting access between the ends of Government Island.

Alternative 3 has the advantage of the lowest construction cost of the three alternatives. It is approximately $19,900,000 less costly than Alternative 1 and its construction can be completed approximately 15 months sooner. This maximum embankment scheme is expected to have a slightly noticeable adverse effect on flood stage and some erosion protection may be required to protect a very small area of the Washington bank immediately downstream from the bridge. No significant adverse hydraulic effects are expected. Alternative 3 has the disadvantages of restricting access between the ends of Government Island and of developing a visually objectionable dike.

If minimum effect on the river and on Government Island is the sole criterion, Alternative 1 is the choice. Alternative 2 will be selected if maximum esthetic value is the criterion, and Alternative 3 will be chosen if the lowest construction cost and the shortest construction schedule are most important.

On the basis of the studies reported herein, none of the alternatives is superior in all respects. It is felt, however, that the substantial savings in cost and in time of construction of Alternative 3, Maximum Embankment, outweigh its slightly noticeable adverse effect on flood stage, its restriction of access on Government Island, and its objectionable appearance.

## X CONCLUSIONS AND RECOMMENDATION

The studies described in this report lead to the following conclusions and recommendation.

### A. Conclusions

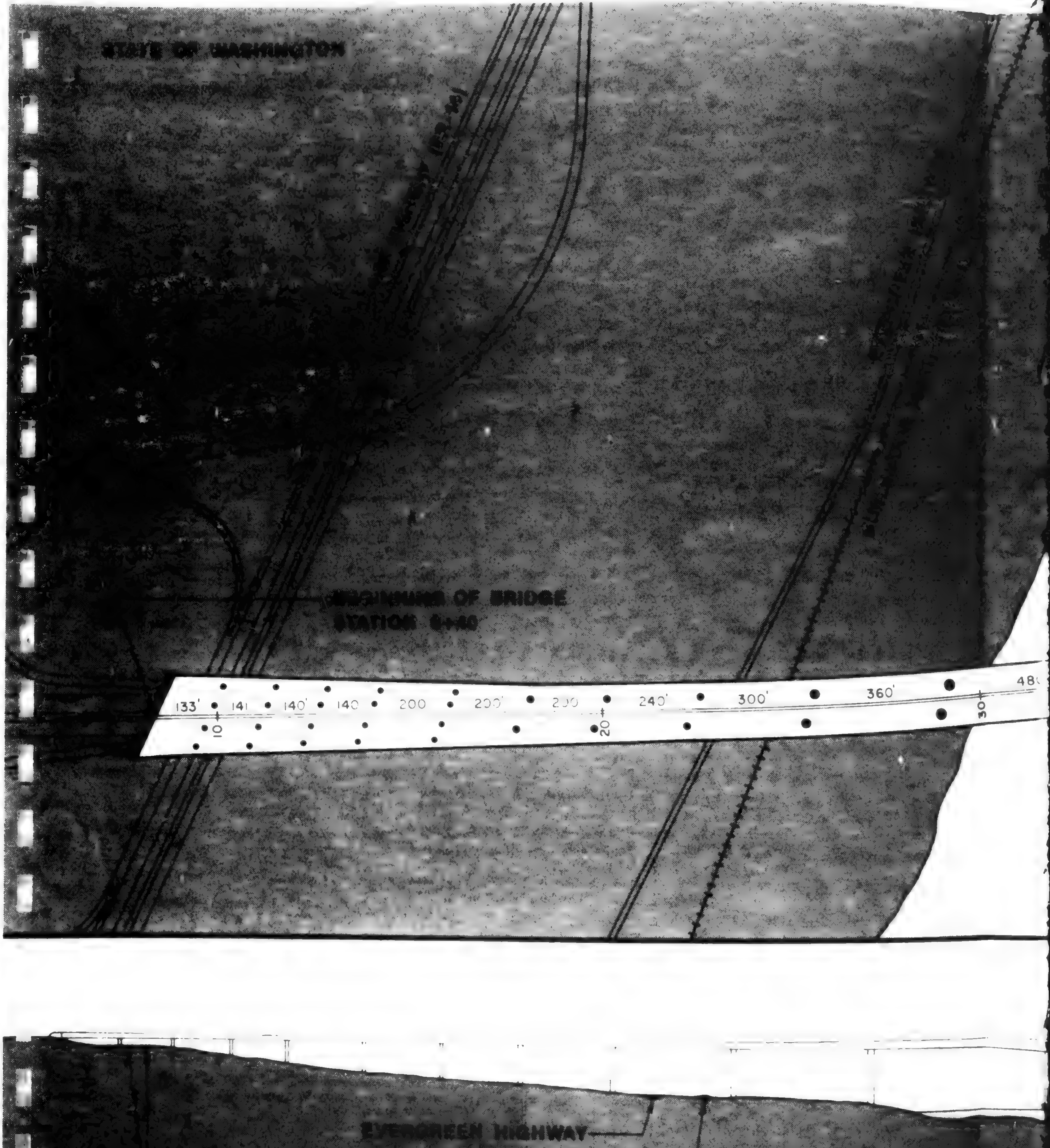
1. Alternative 1, All-Structure, can be constructed without noticeable adverse hydraulic effects. It is esthetically acceptable, but will be the most costly and require the longest construction time of the three schemes.

2. Alternative 2, Minimum Embankment, can also be constructed without noticeable adverse hydraulic effects and is the preferred scheme on the basis of esthetics. Its cost and time of construction will be between those for Alternatives 1 and 3.

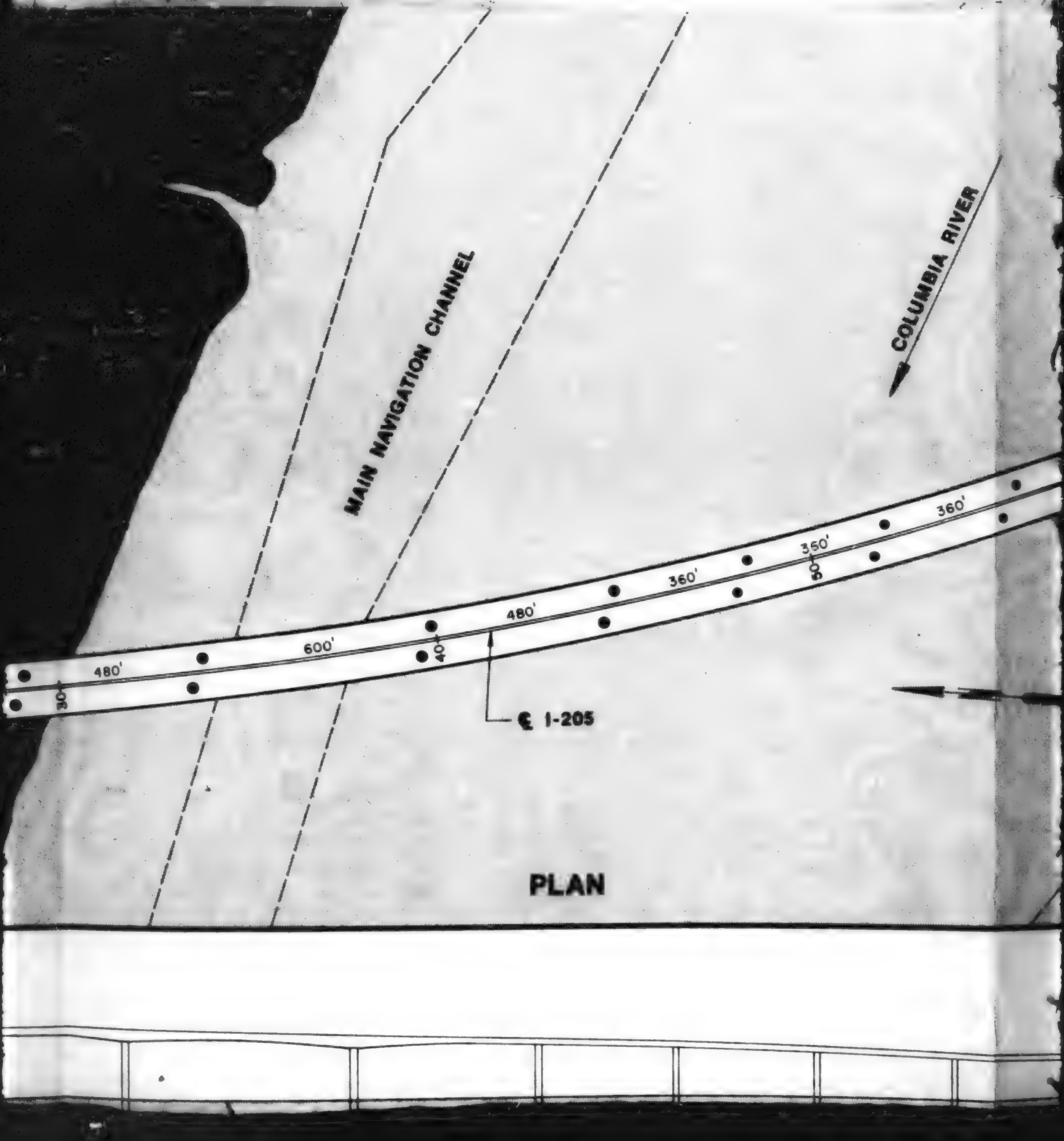
3. Alternative 3, Maximum Embankment, will have a slightly noticeable adverse effect on the flood stage, and it will be esthetically objectionable. However, it will be substantially less costly and its construction can be completed much sooner than either Alternative 1 or Alternative 2.

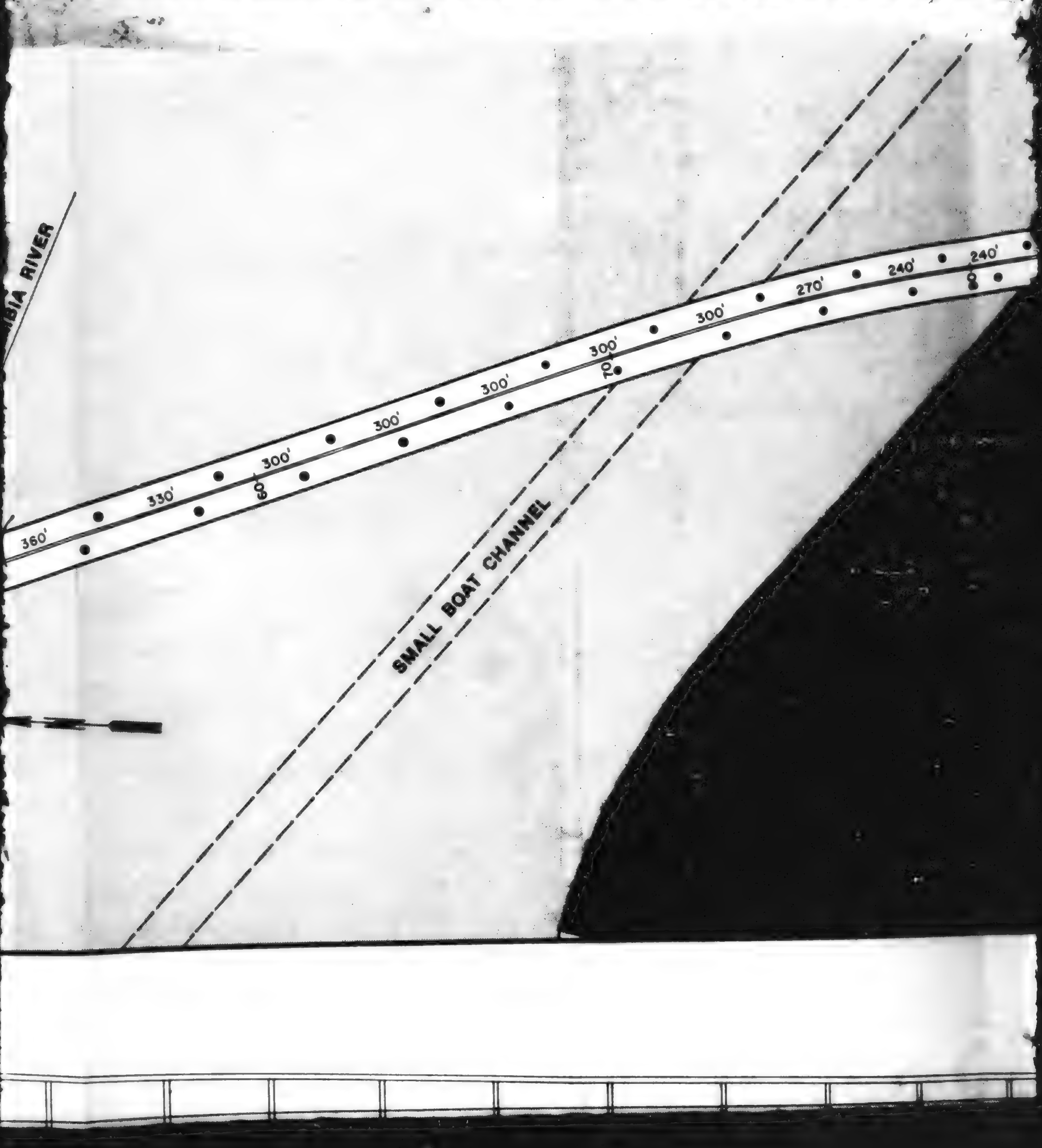
### B. Recommendation

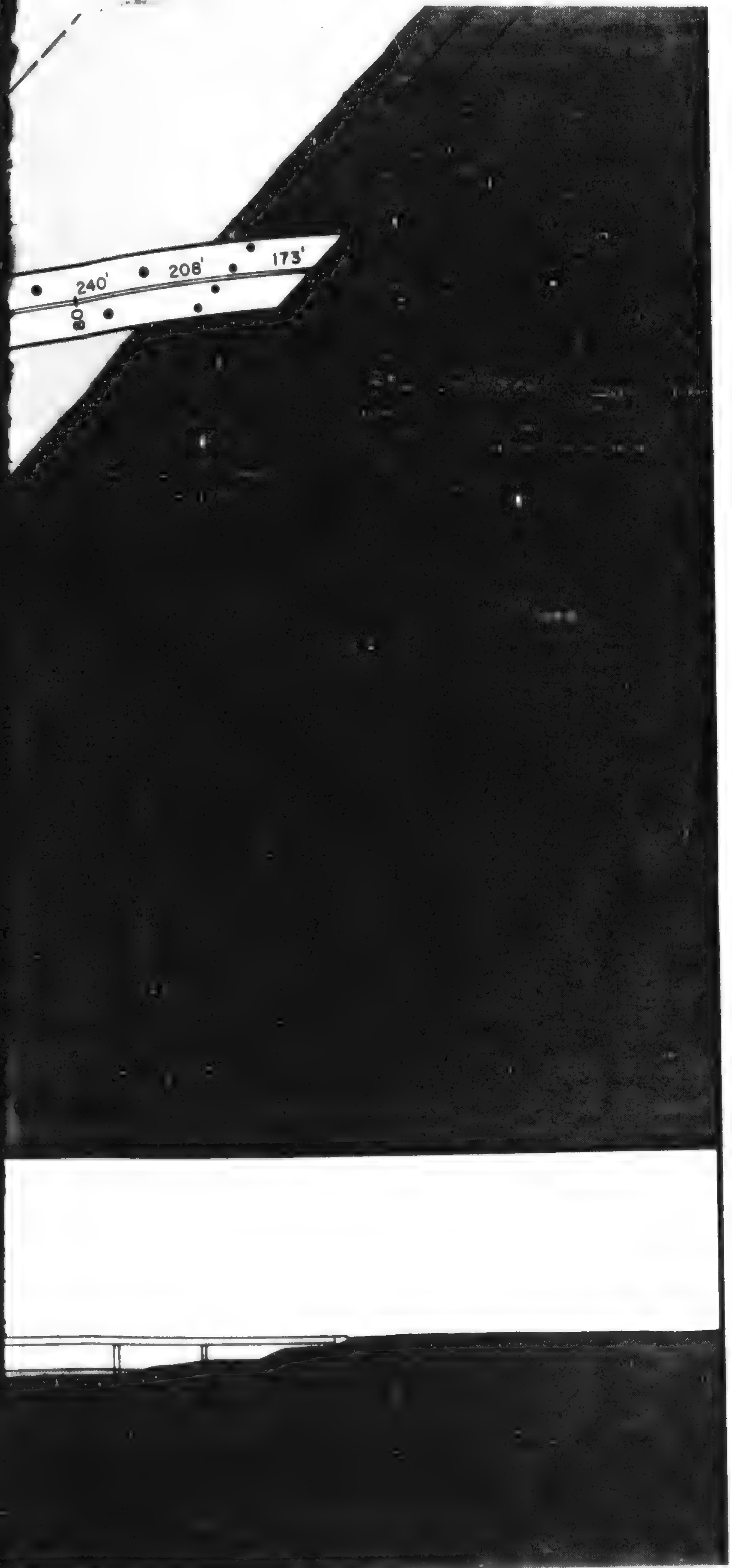
Sverdrup & Parcel recommends Alternative 3, Maximum Embankment.

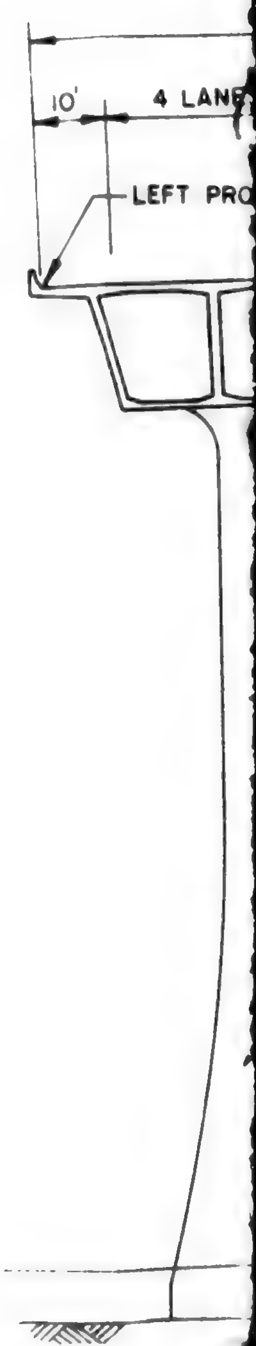

STATE OF WASHINGTON
BEGINNING OF BRIDGE
STATION 8+40
133'
141'
140'
140'
200'
200'
200'
240'
300'
360'
48
10
20
30

EVERGREEN HIGHWAY
BURLINGTON NORT
LEWIS AND CLARK HIGHWAY (SR 14)


MAIN NAVIGATION CHANNEL
COLUMBIA RIVER
℄ I-205
PLAN

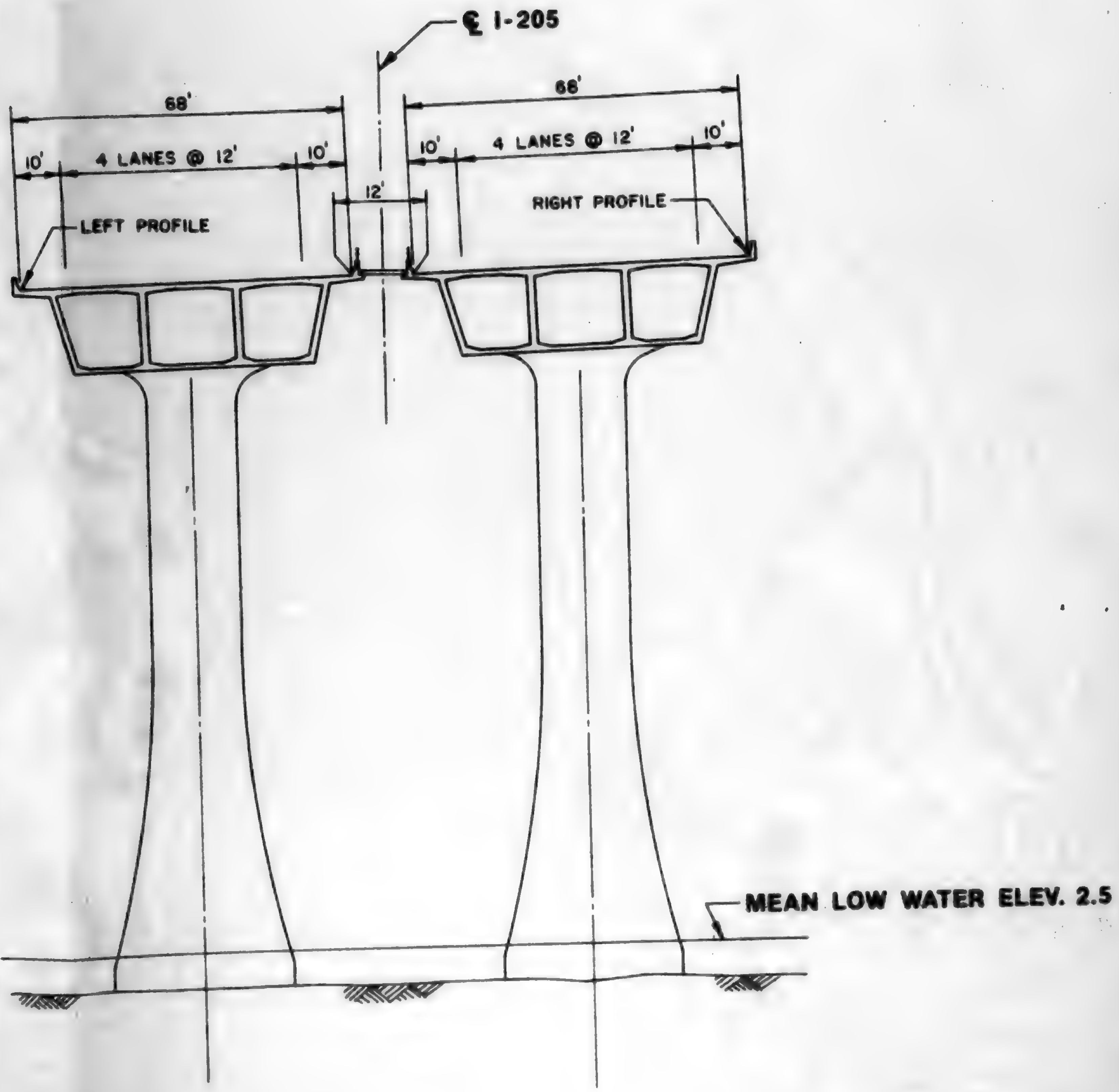

BIA RIVER
360'
330'
300'
60
300'
300'
300'
70
300'
270'
240'
240'
SMALL BOAT CHANNEL




10'
4 LANE
LEFT PRO

## FORMER BRIDGE PLAN

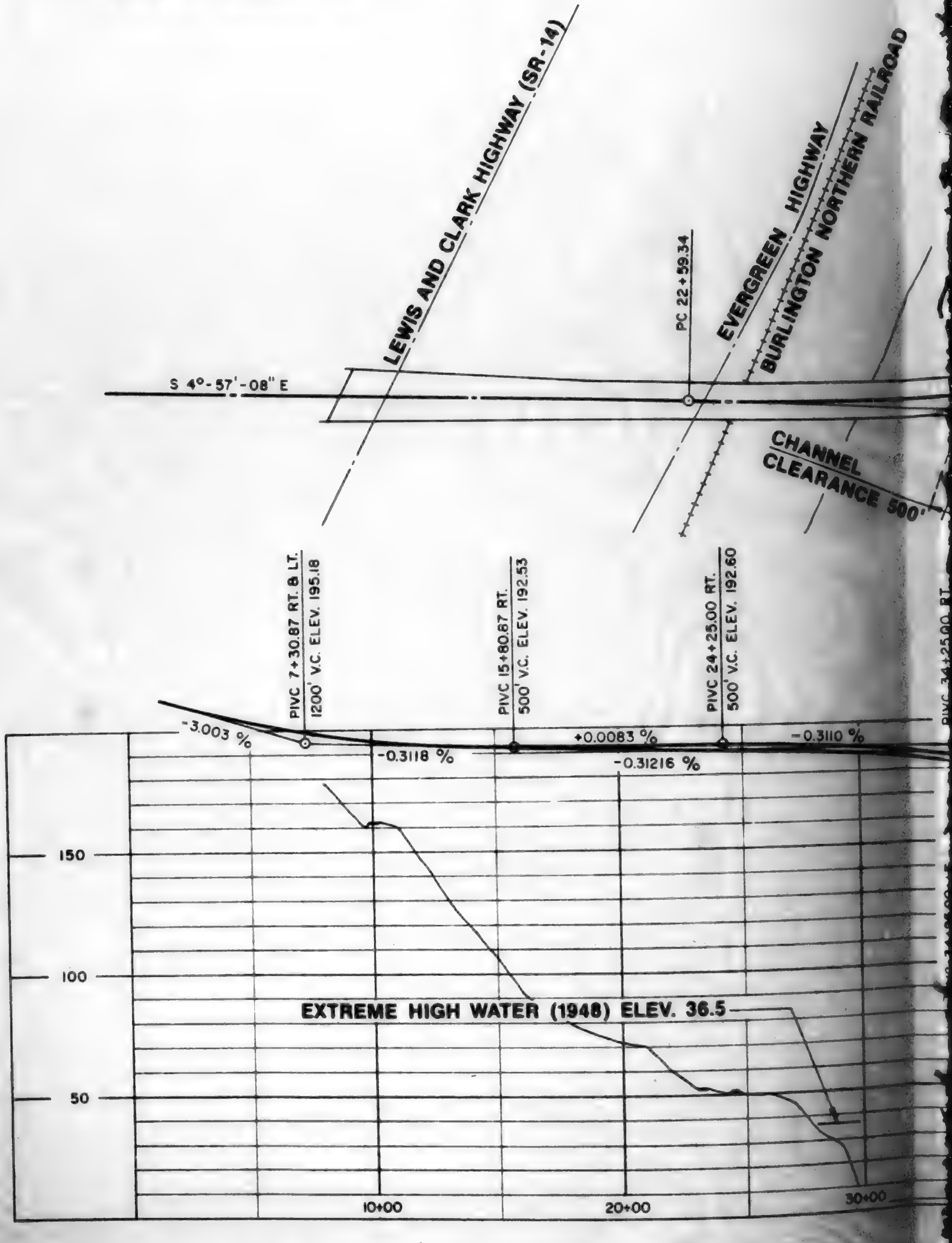
**1**

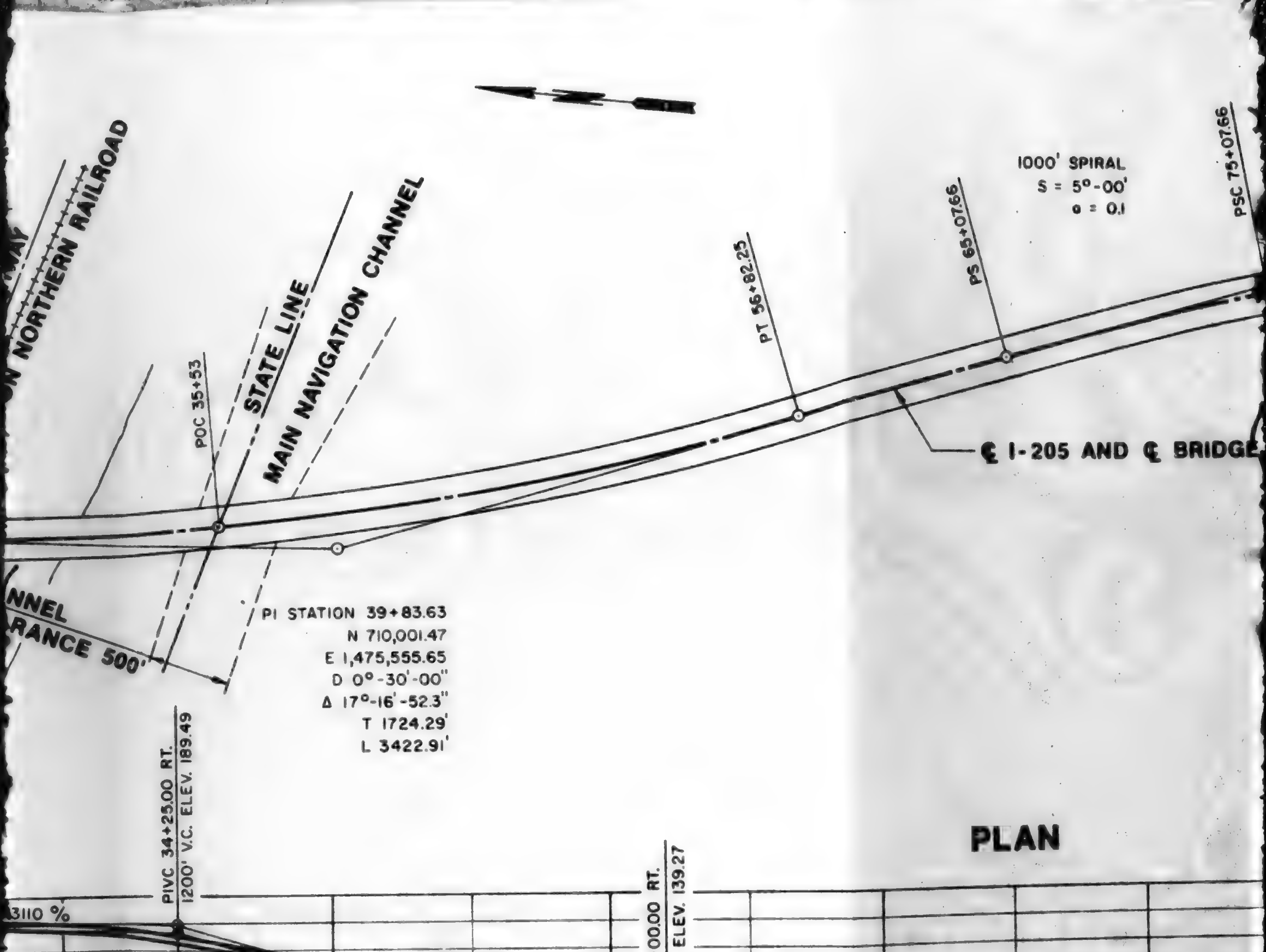


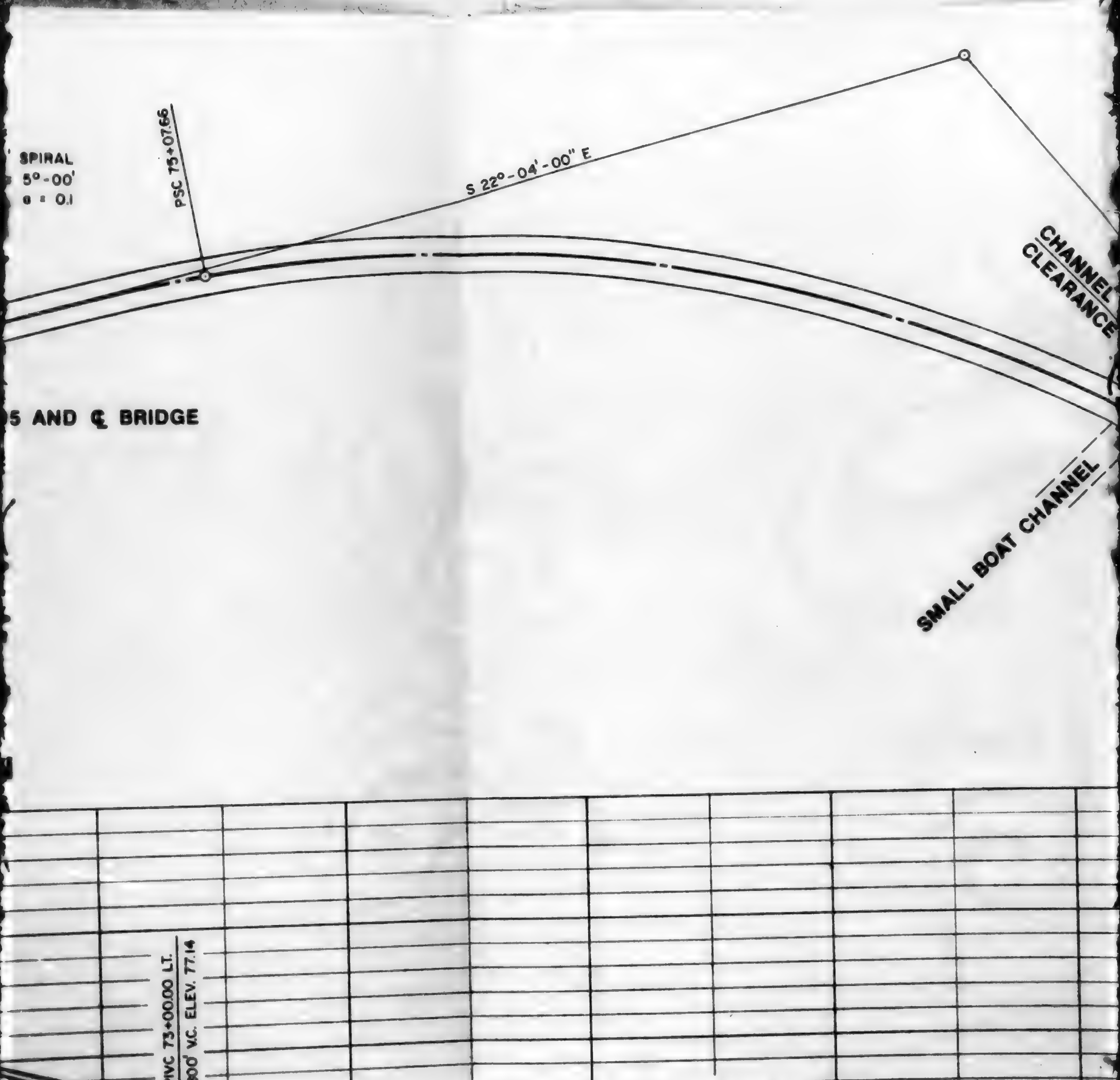
℄ I-205
68'
68'
10'
4 LANES @ 12'
10'
10'
4 LANES @ 12'
10'
12'
LEFT PROFILE
RIGHT PROFILE
MEAN LOW WATER ELEV. 2.5

## TYPICAL CROSS SECTION

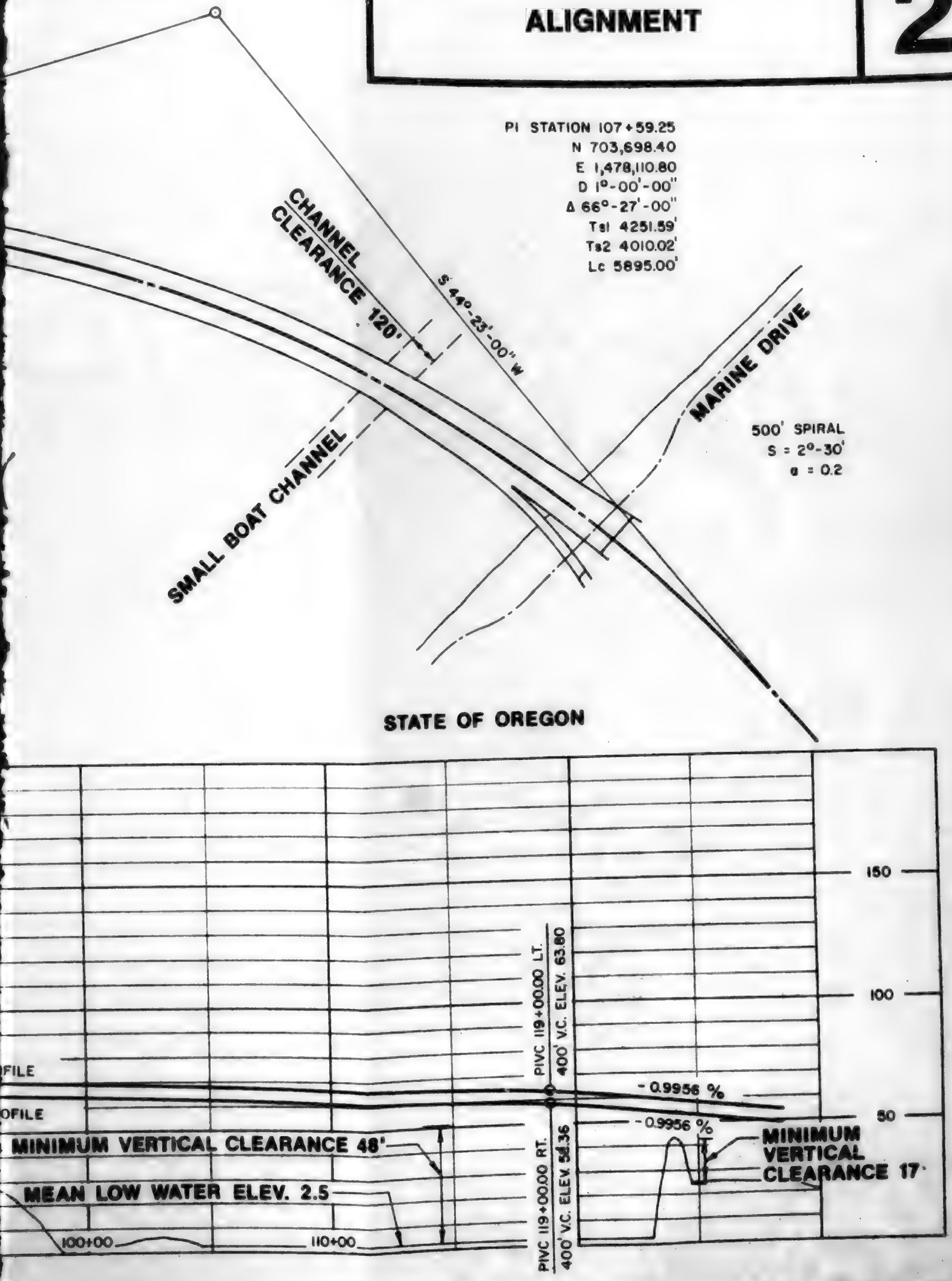
STATE OF WASHINGTON

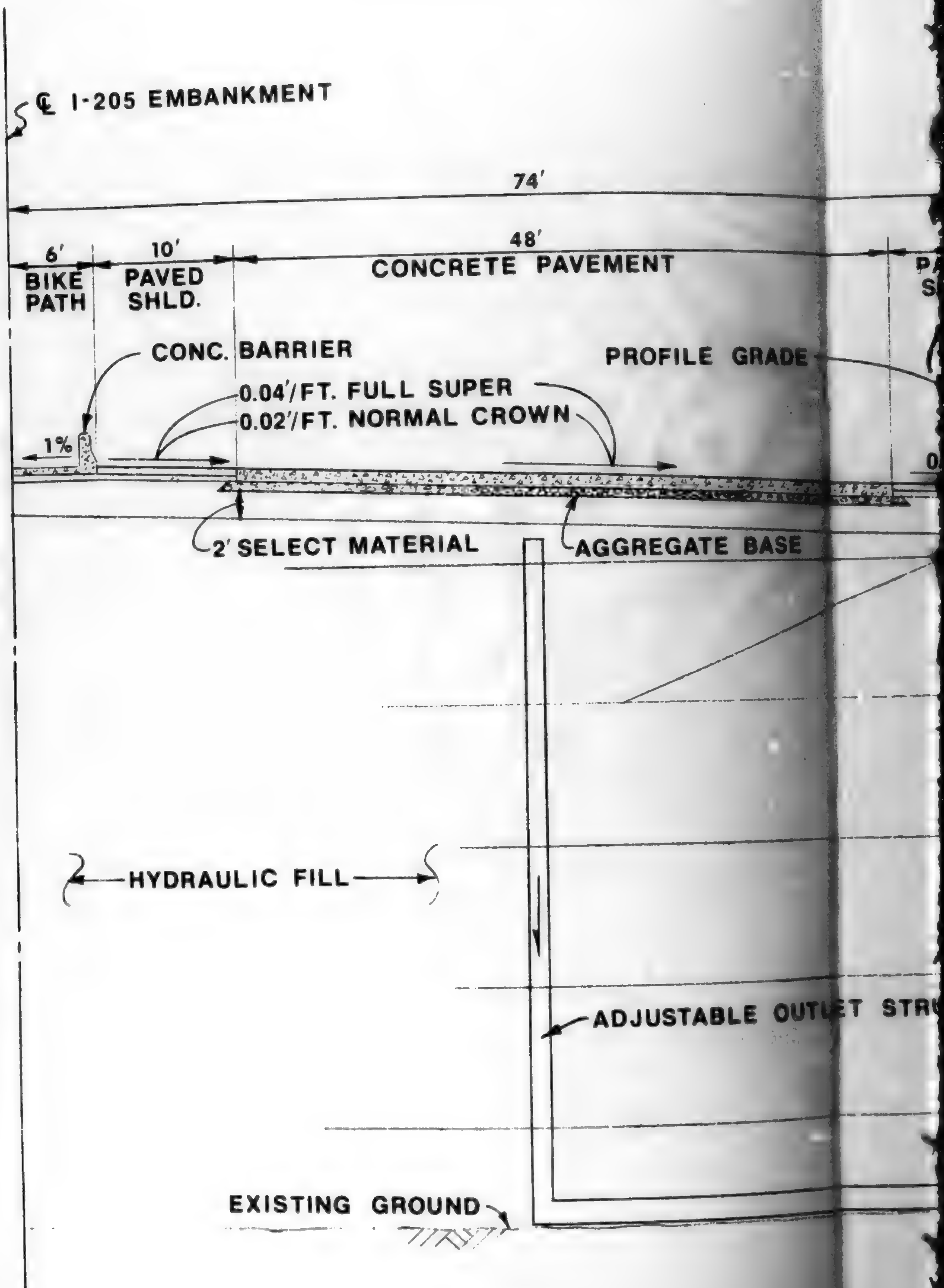

LEWIS AND CLARK HIGHWAY (SR-14)
EVERGREEN HIGHWAY
BURLINGTON NORTHERN RAILROAD
PC 22+59.34
S 4°-57'-08" E
CHANNEL CLEARANCE 500'
PIVC 7+30.87 RT. 8 LT.
1200' V.C. ELEV. 195.18
PIVC 15+80.87 RT.
500' V.C. ELEV. 192.53
PIVC 24+25.00 RT.
500' V.C. ELEV. 192.60
PIVC 34+25.00 RT.
-3.003 %
-0.3118 %
+0.0083 %
-0.31216 %
-0.3110 %
150
100
50
EXTREME HIGH WATER (1948) ELEV. 36.5
10+00
20+00
30+00


N
NORTHERN RAILROAD
STATE LINE
MAIN NAVIGATION CHANNEL
NNEL
RANCE 500'
POC 35+53
PT 56+82.25
PS 65+07.66
PSC 75+07.66
1000' SPIRAL
S = 5°-00'
a = 0.1
℄ I-205 AND ℄ BRIDGE
PI STATION 39+83.63
N 710,001.47
E 1,475,555.65
D 0°-30'-00"
Δ 17°-16'-52.3"
T 1724.29'
L 3422.91'
PLAN
3110 %
PIVC 34+25.00 RT.
1200' V.C. ELEV. 189.49
PIVC 34+25.00 LT.
1200' V.C. ELEV. 186.77
-2.8293 % RIGHT PROFILE
-2.8292 % LEFT PROFILE
PIVC 52+00.00 RT.
200' V.C. ELEV. 139.27
MINIMUM VERTICAL CLEARANCE 136'
-3.2176 %
PIVC 73+00.00 LT.
800' V.C. ELEV. 77.14
PIVC 73+00.00 RT.
800' V.C. ELEV. 71.70
MEAN LOW WATER ELEV. 2.5
30+00
40+00
50+00
60+00
70+00
PROFILE

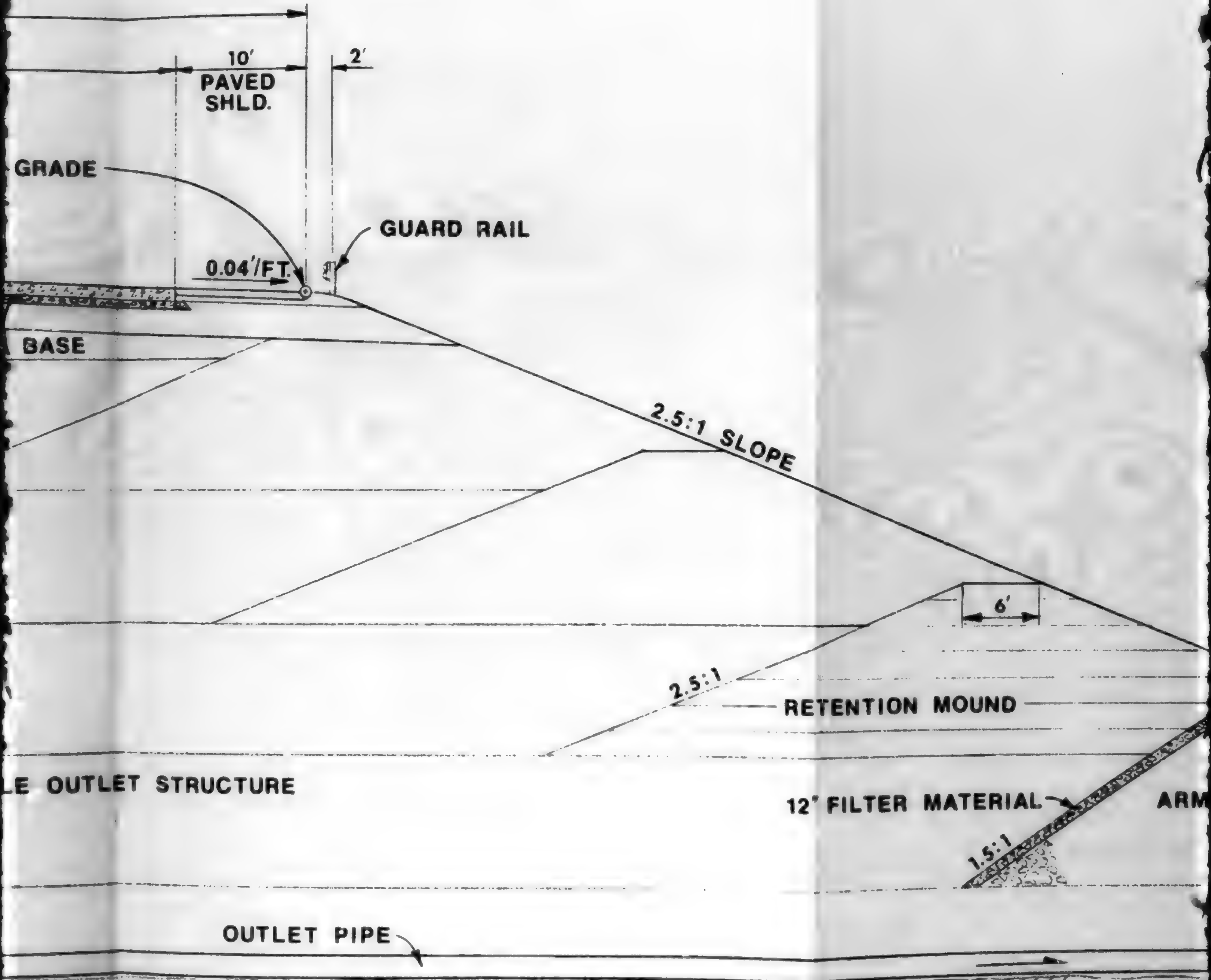

' SPIRAL
5°-00'
e = 0.1
PSC 75+07.66
S 22°-04'-00" E
CHANNEL
CLEARANCE
5 AND ℄ BRIDGE
SMALL BOAT CHANNEL
PIVC 73+00.00 LT.
800' V.C. ELEV. 77.14
76 %
-0.29 % LEFT PROFILE
- 0.29 % RIGHT PROFILE
PIVC 73+00.00 RT.
800' V.C. ELEV. 71.70
MINIMUM VERTICAL CLEARANCE
MEAN LOW WATER ELEV. 2.5
70+00
80+00
90+00
100+00
110+00
LE

**ALIGNMENT** **2**


PI STATION 107+59.25
N 703,698.40
E 1,478,110.80
D 1°-00'-00"
Δ 66°-27'-00"
Ts1 4251.59'
Ts2 4010.02'
Lc 5895.00'
CHANNEL CLEARANCE 120'
S 44°-23'-00" W
MARINE DRIVE
SMALL BOAT CHANNEL
500' SPIRAL
S = 2°-30'
a = 0.2
STATE OF OREGON
150
100
50
OFILE
OFILE
MINIMUM VERTICAL CLEARANCE 48'
MEAN LOW WATER ELEV. 2.5
100+00
110+00
PIVC 119+00.00 LT.
400' V.C. ELEV. 63.80
PIVC 119+00.00 RT.
400' V.C. ELEV. 54.36
-0.9956 %
-0.9956 %
MINIMUM VERTICAL CLEARANCE 17'

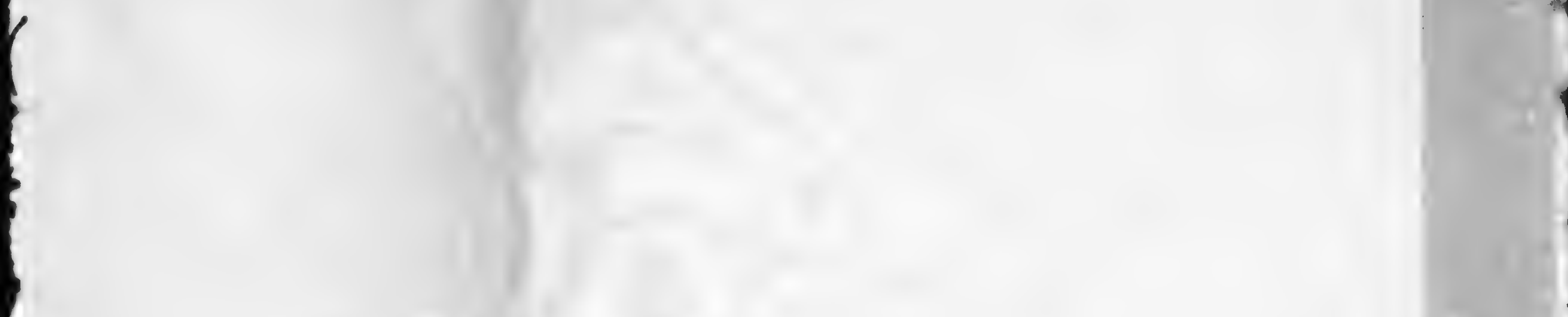


℄ I-205 EMBANKMENT
74'
6'
BIKE PATH
10'
PAVED SHLD.
48'
CONCRETE PAVEMENT
PA
S
CONC. BARRIER
PROFILE GRADE
0.04'/FT. FULL SUPER
0.02'/FT. NORMAL CROWN
1%
0
2' SELECT MATERIAL
AGGREGATE BASE
HYDRAULIC FILL
ADJUSTABLE OUTLET STRU
EXISTING GROUND


10'
PAVED SHLD.
2'
GRADE
GUARD RAIL
0.04'/FT.
BASE
2.5:1 SLOPE
6'
2.5:1
RETENTION MOUND
LE OUTLET STRUCTURE
12" FILTER MATERIAL
ARM
1.5:1
OUTLET PIPE

TYPICAL EMBANKMENT - HALF SECTION

TYPICAL
ALTE

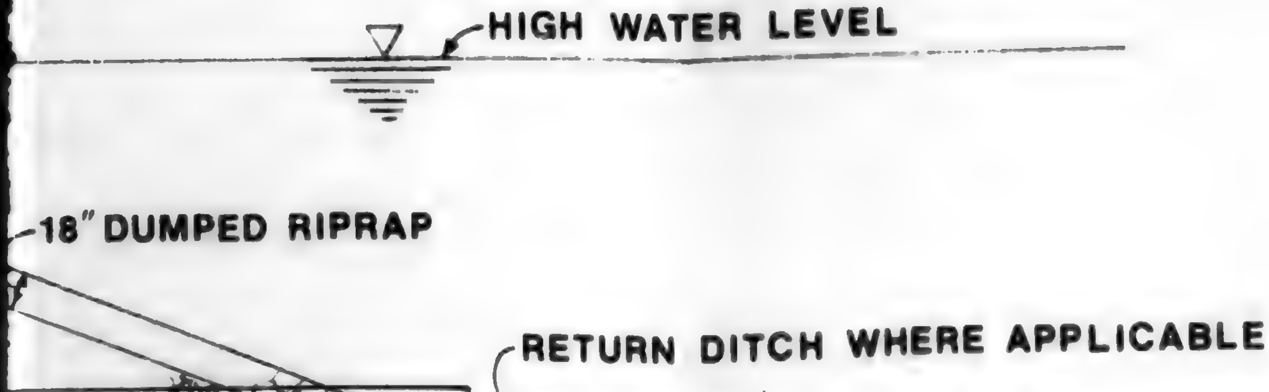


3' MIN.
6'
HIGH WATER LEVE
ARMOR STONE
18" DUMPED RIPRAP
3' MIN.
RETURN DITCH W

TION

## TYPICAL EMBANKMENT SECTION
## ALTERNATIVES 2 & 3

## 3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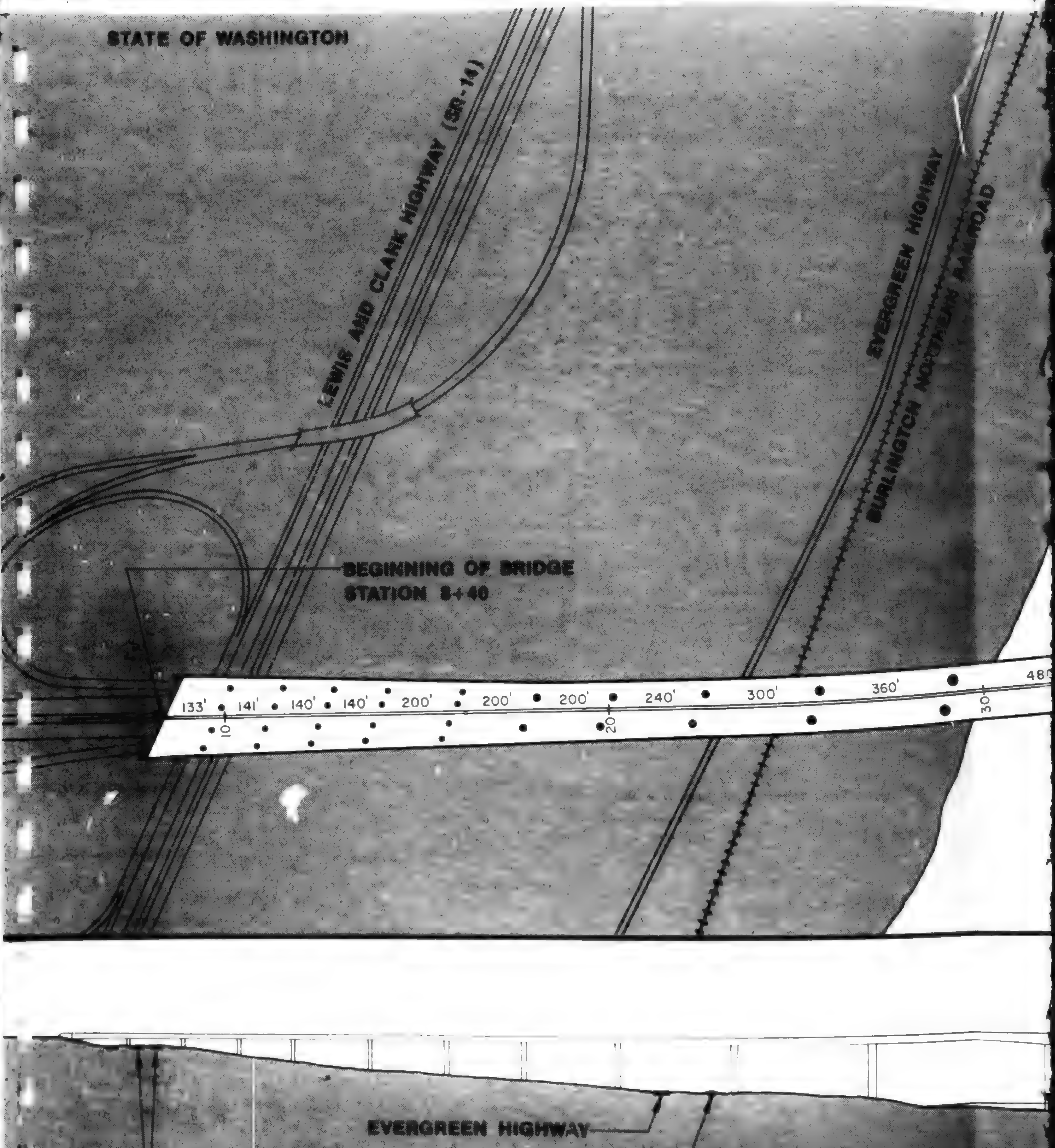
18" DUMPED RIPRAP
RETURN DITCH WHERE APPLICABLE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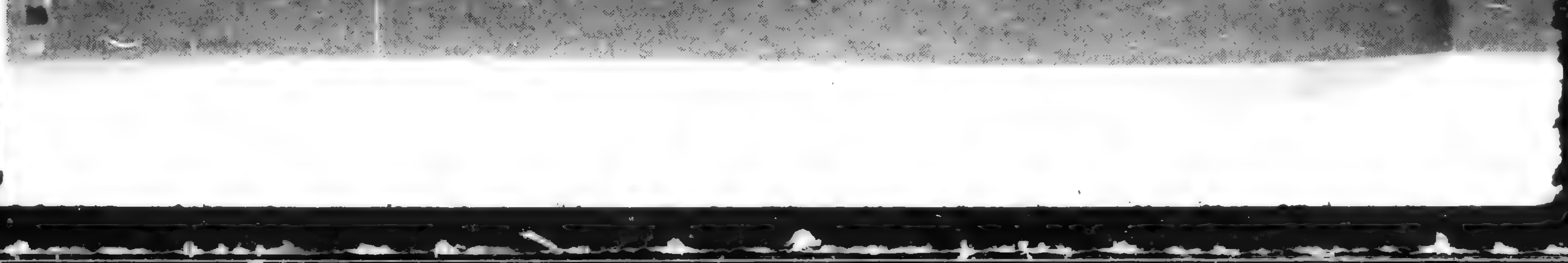
BEGINNING OF BRIDGE
STATION 8+40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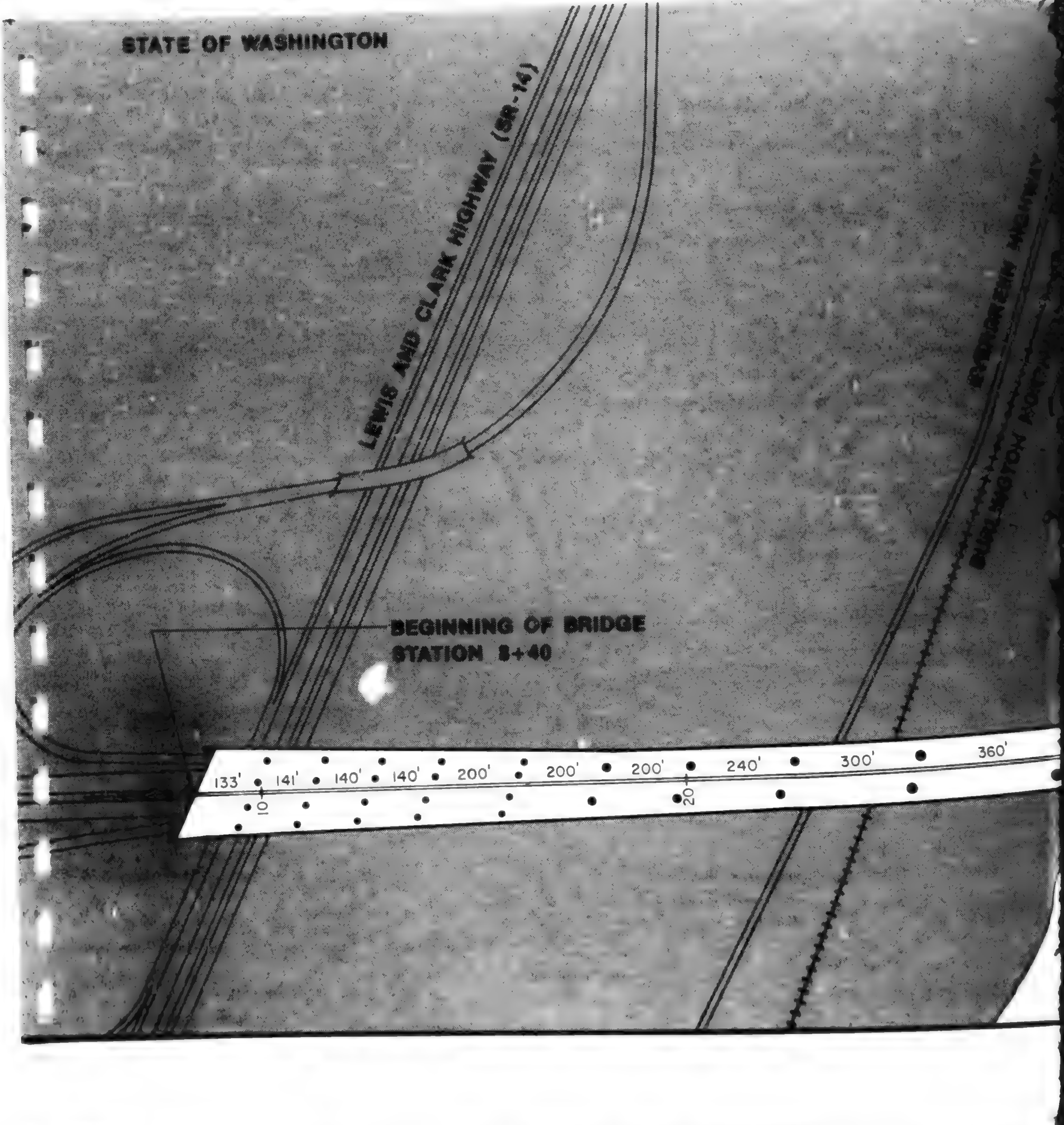
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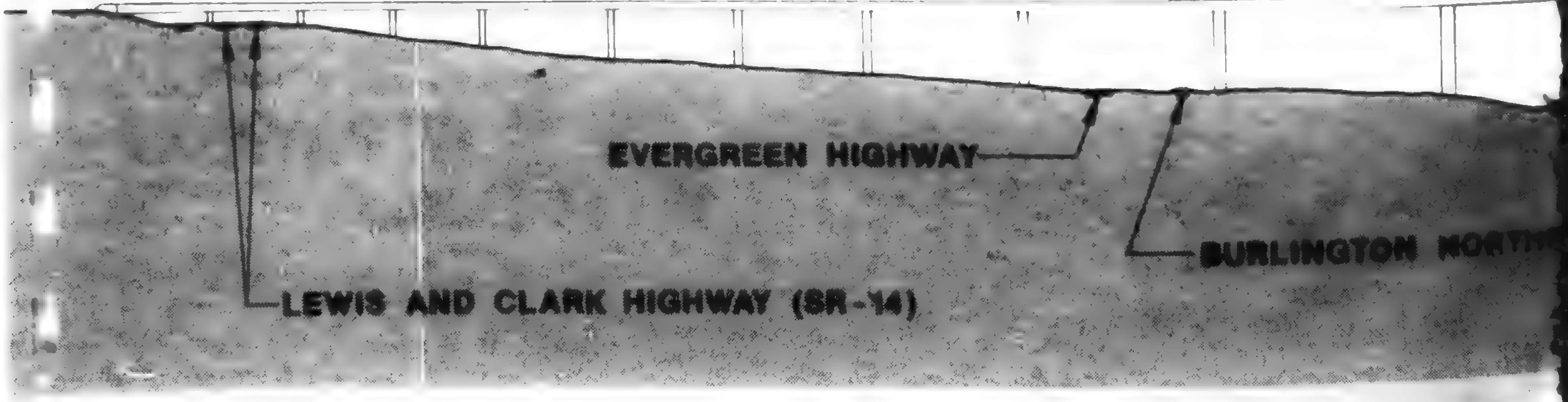
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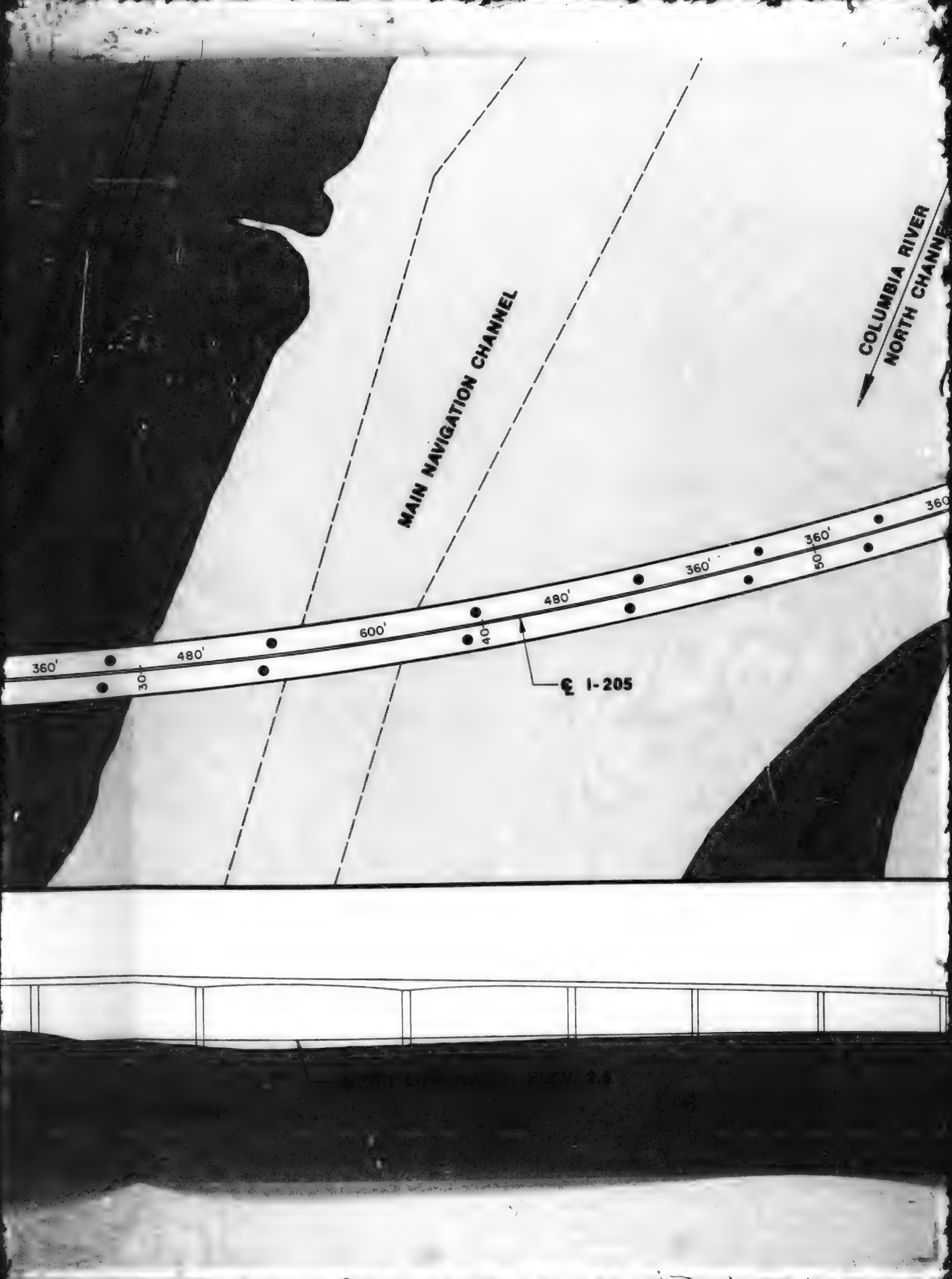
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NORTH CHANNE
℄ I-205
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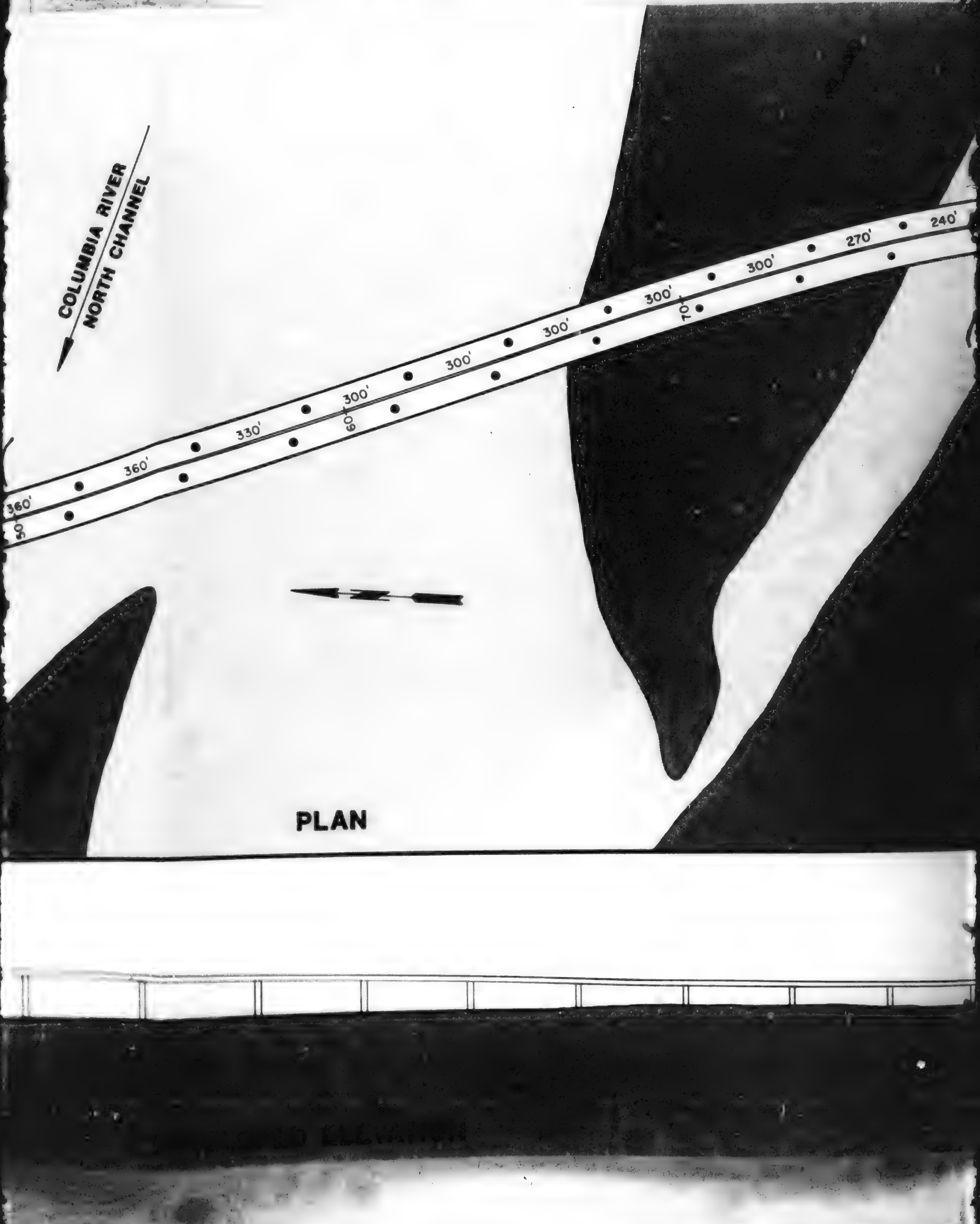
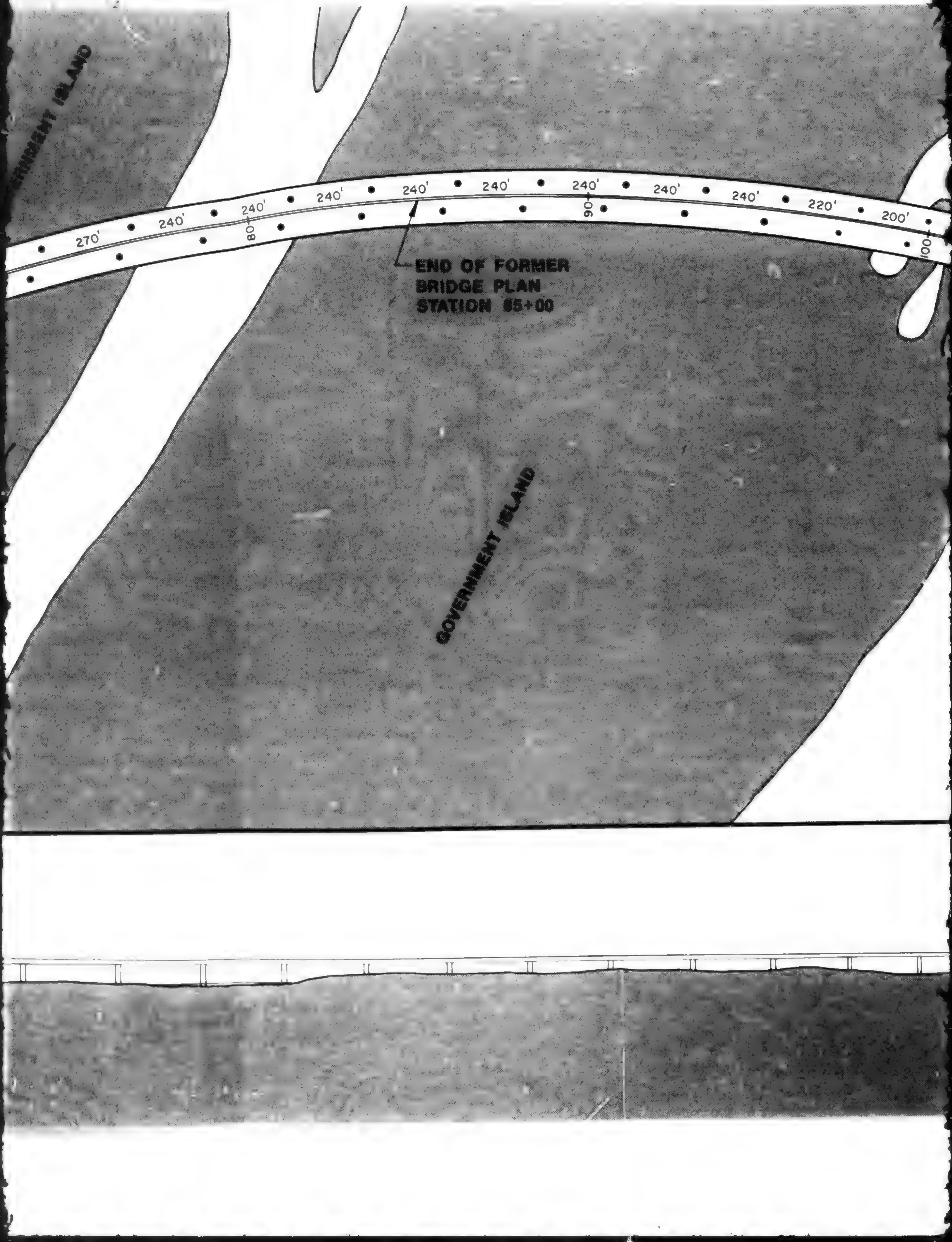

COLUMBIA RIVER
NORTH CHANNEL
N
PLAN
ELEVATION


RNMENT ISLAND
270'
240'
240'
240'
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240'
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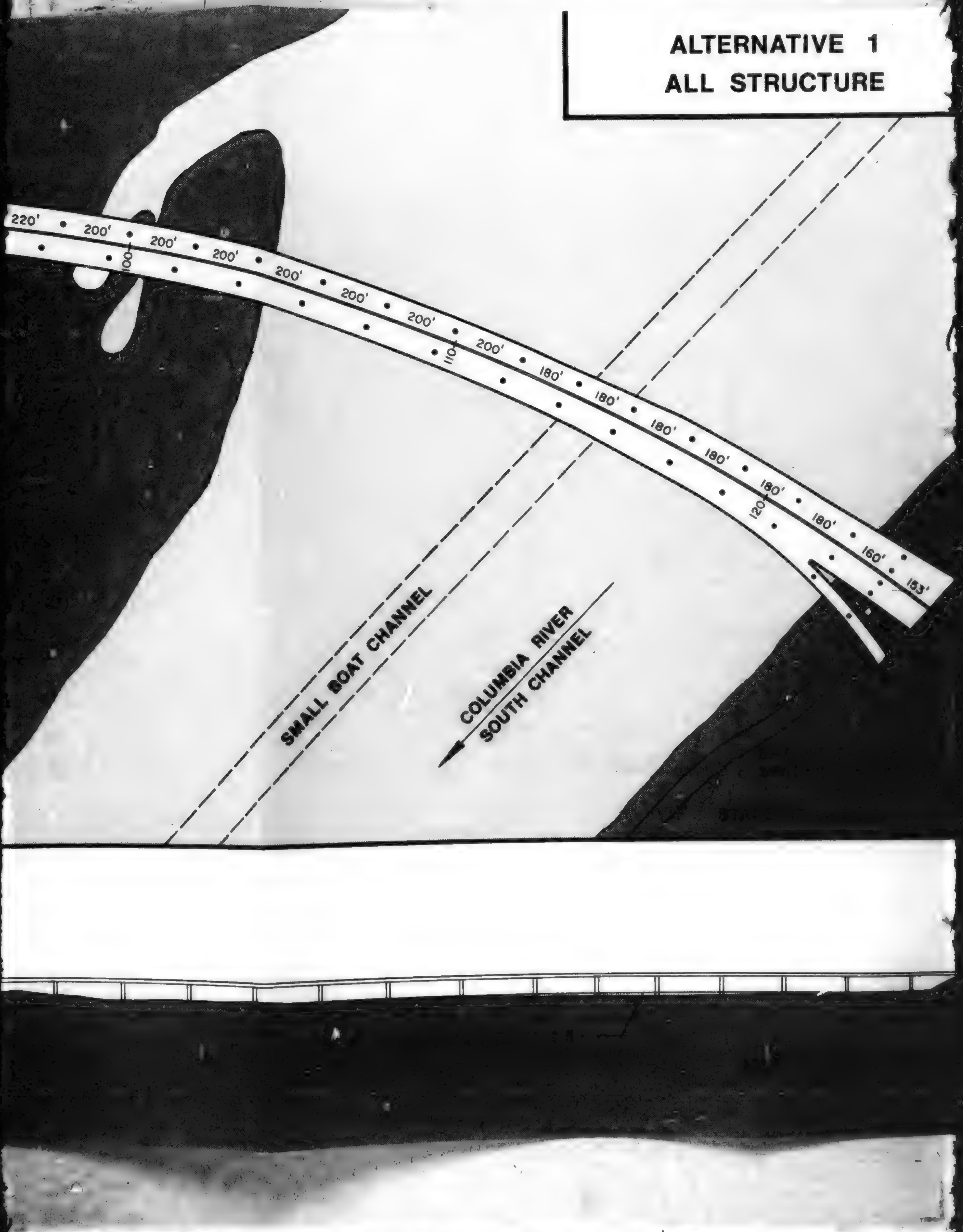
240'
240'
220'
200'
80
90
100
END OF FORMER
BRIDGE PLAN
STATION 85+00
GOVERNMENT ISLAND

# ALTERNATIVE 1
# ALL STRUCTURE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180'
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180'
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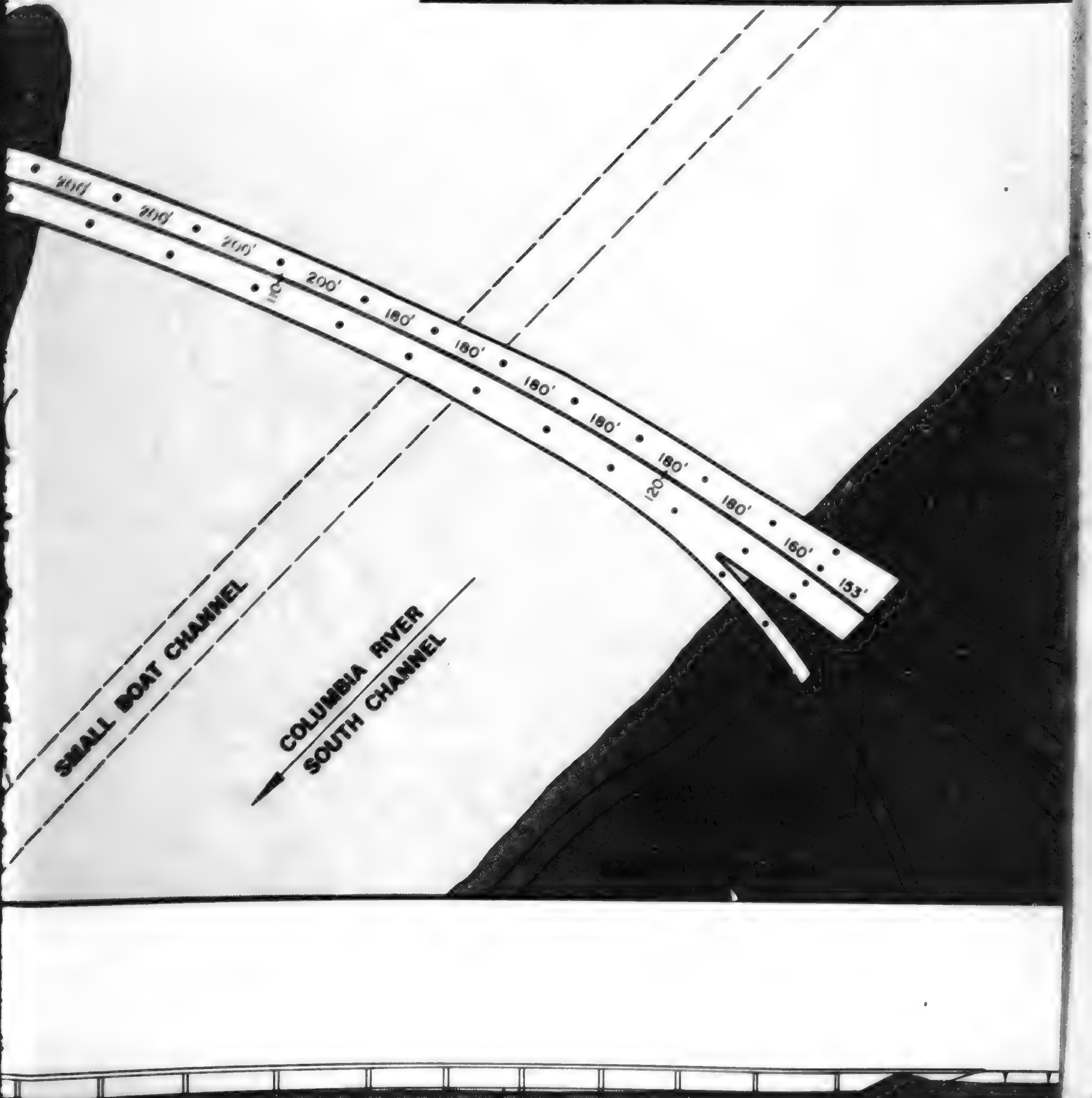
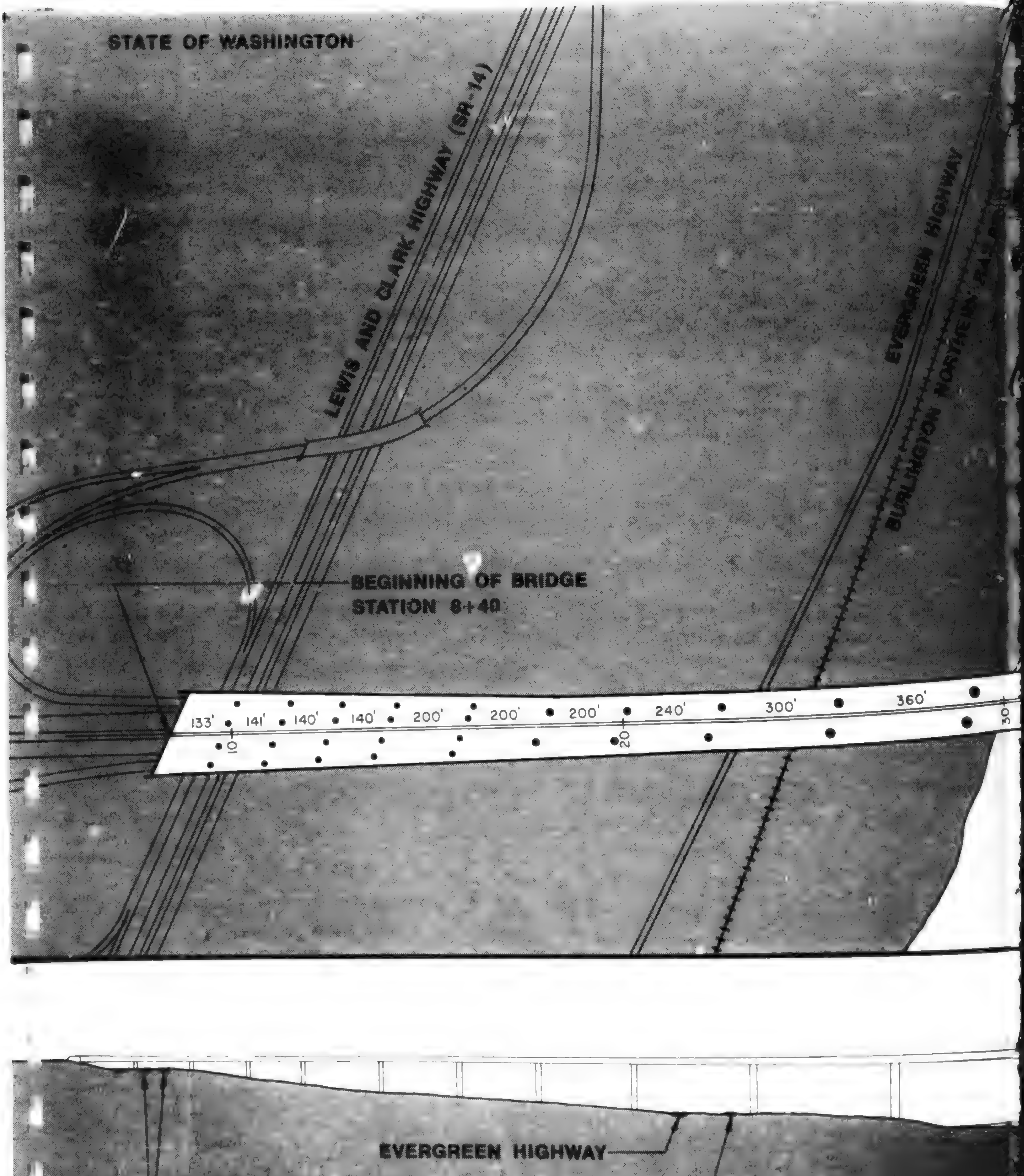
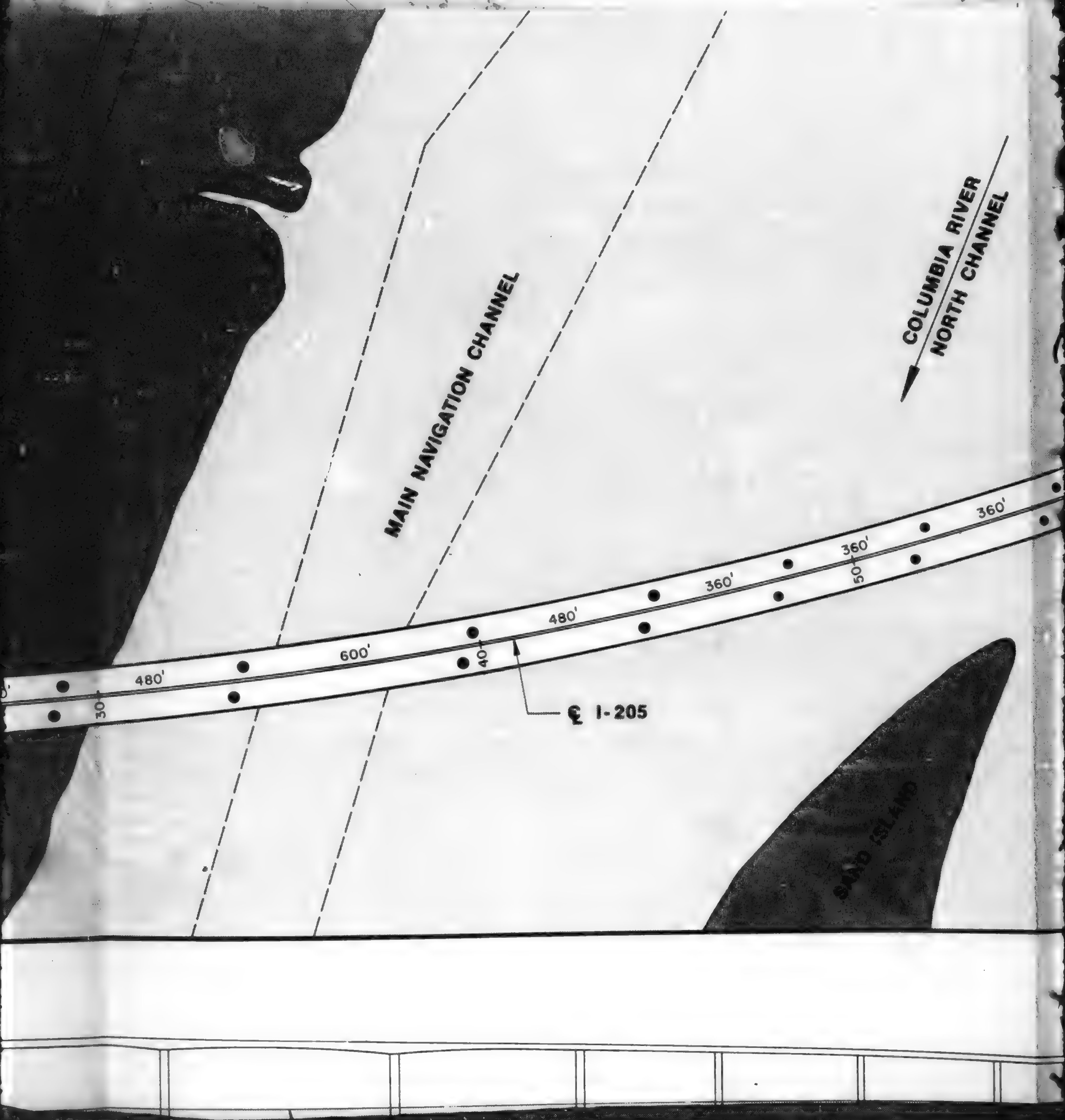
180'
160'
153'
100
110
120
SMALL BOAT CHANNEL
COLUMBIA RIVER
SOUTH CHANNEL

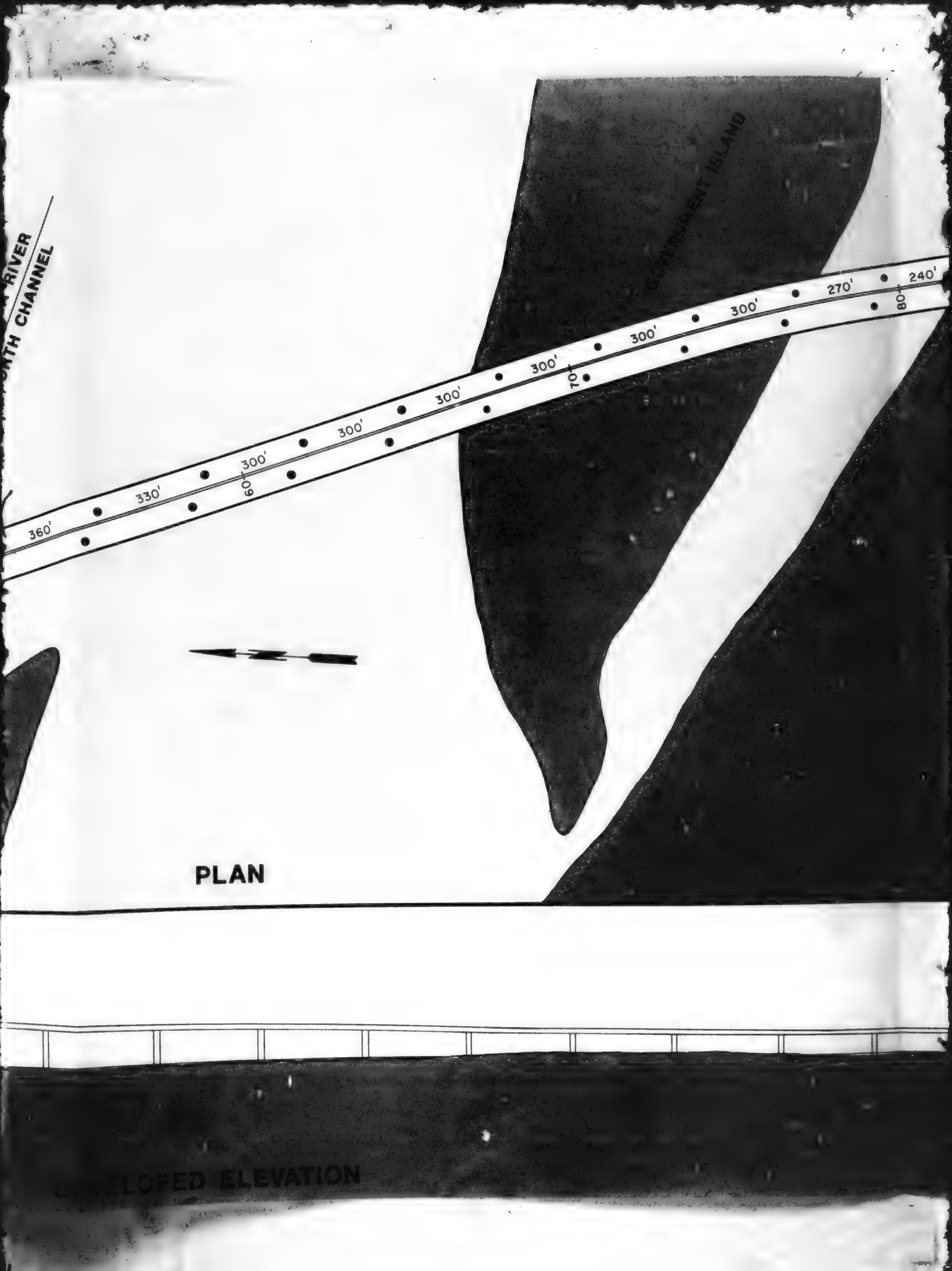
## ALTERNATIVE 1
## ALL STRUCTURE

## 4


200'
200'
200'
200'
120
180'
180'
180'
180'
180'
120
180'
160'
153'
SMALL BOAT CHANNEL
COLUMBIA RIVER
SOUTH CHANNEL

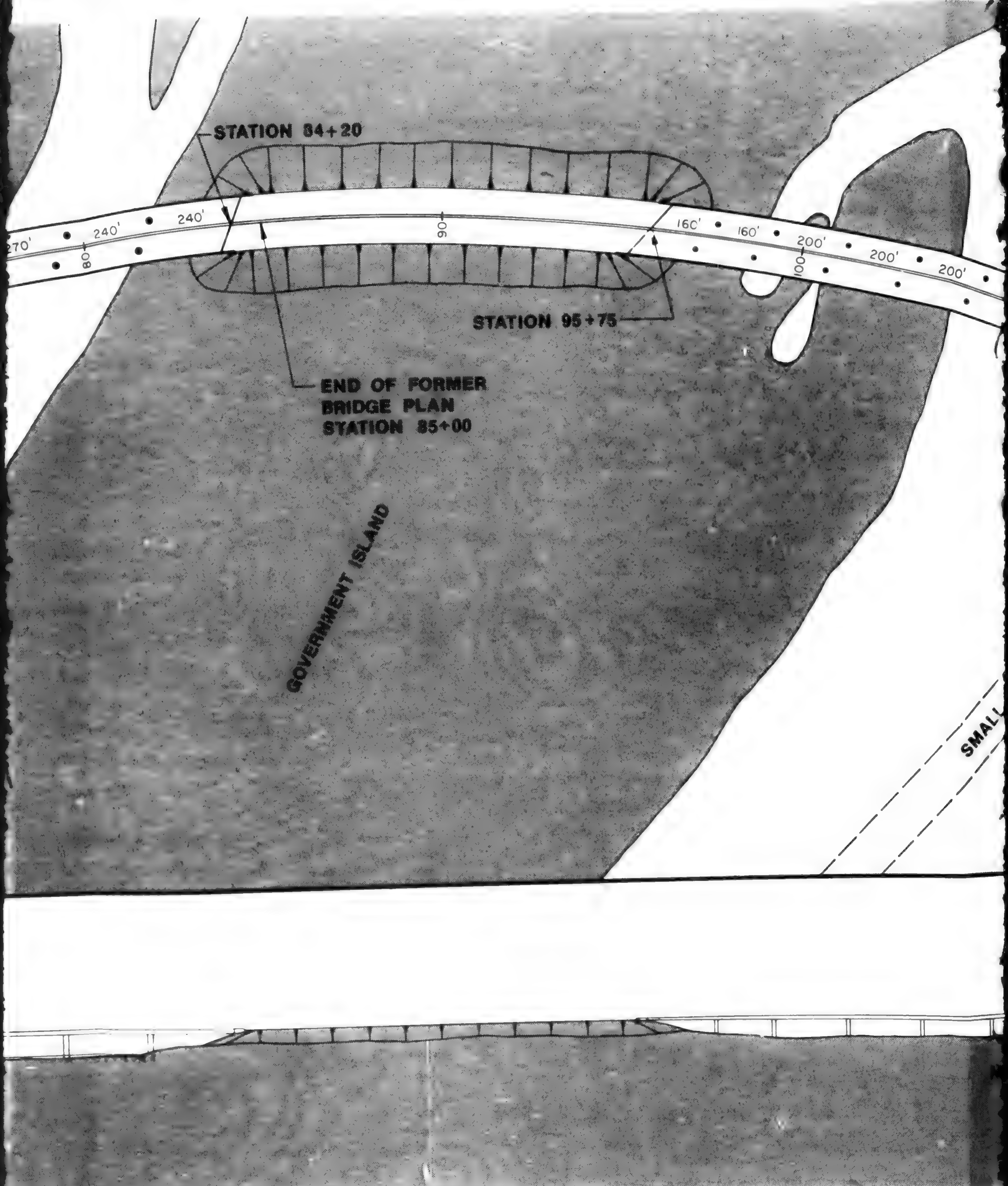

STATE OF WASHINGTON
LEWIS AND CLARK HIGHWAY (SR-14)
EVERGREEN HIGHWAY
BURLINGTON NORTHERN RA
BEGINNING OF BRIDGE
STATION 8+40
133'
141'
140'
140'
200'
200'
200'
240'
300'
360'
10
20
30
EVERGREEN HIGHWAY
BURLINGTON NORTH
LEWIS AND CLARK HIGHWAY (SR-14)


MAIN NAVIGATION CHANNEL
COLUMBIA RIVER
NORTH CHANNEL
480'
600'
480'
360'
360'
360'
30
40
50
℄ I-205
SAND ISLAND


RIVER
RTH CHANNEL
GOVERNMENT ISLAND
360'
330'
300'
300'
300'
300'
300'
300'
270'
240'
60'
70'
80'

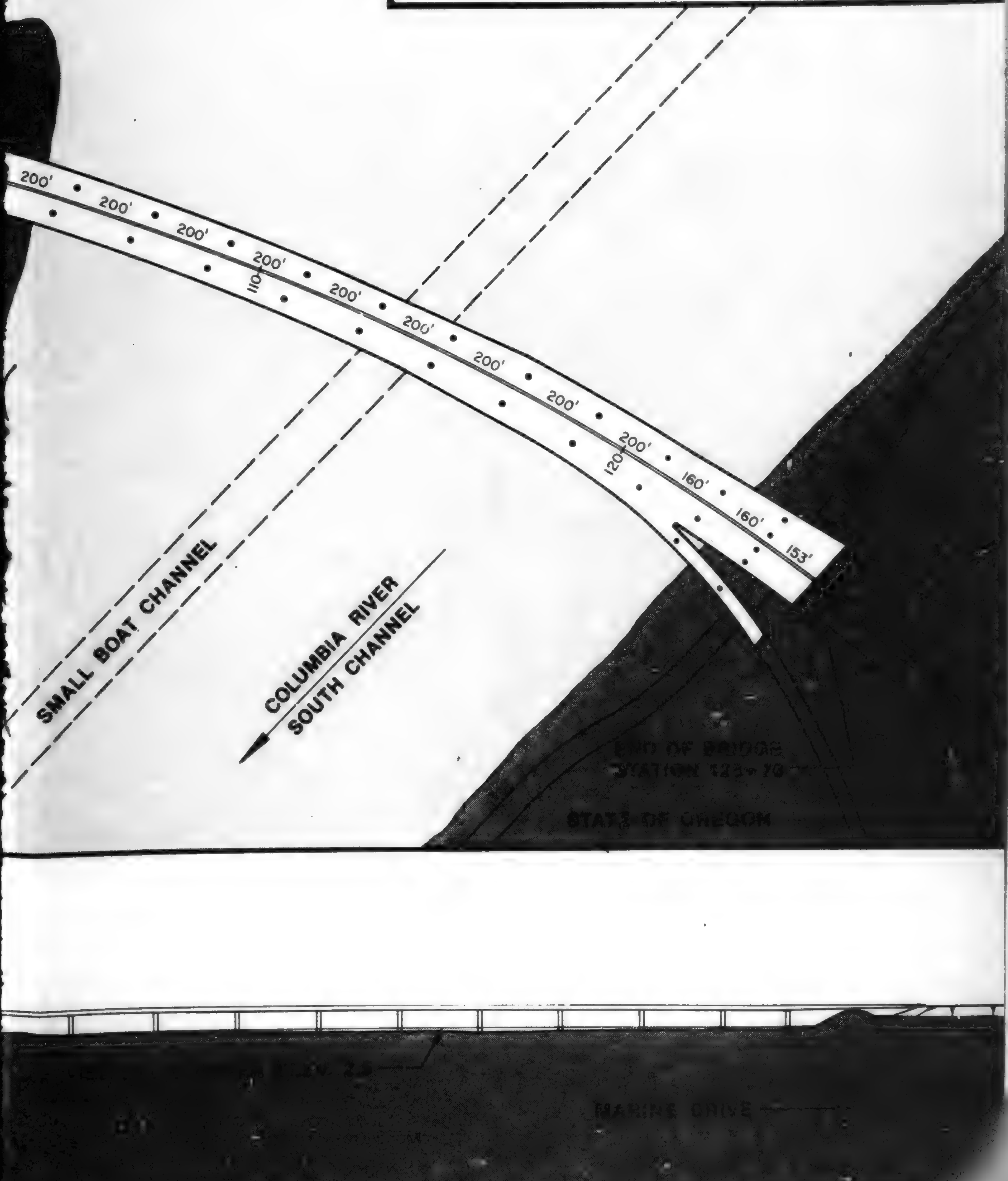
PLAN

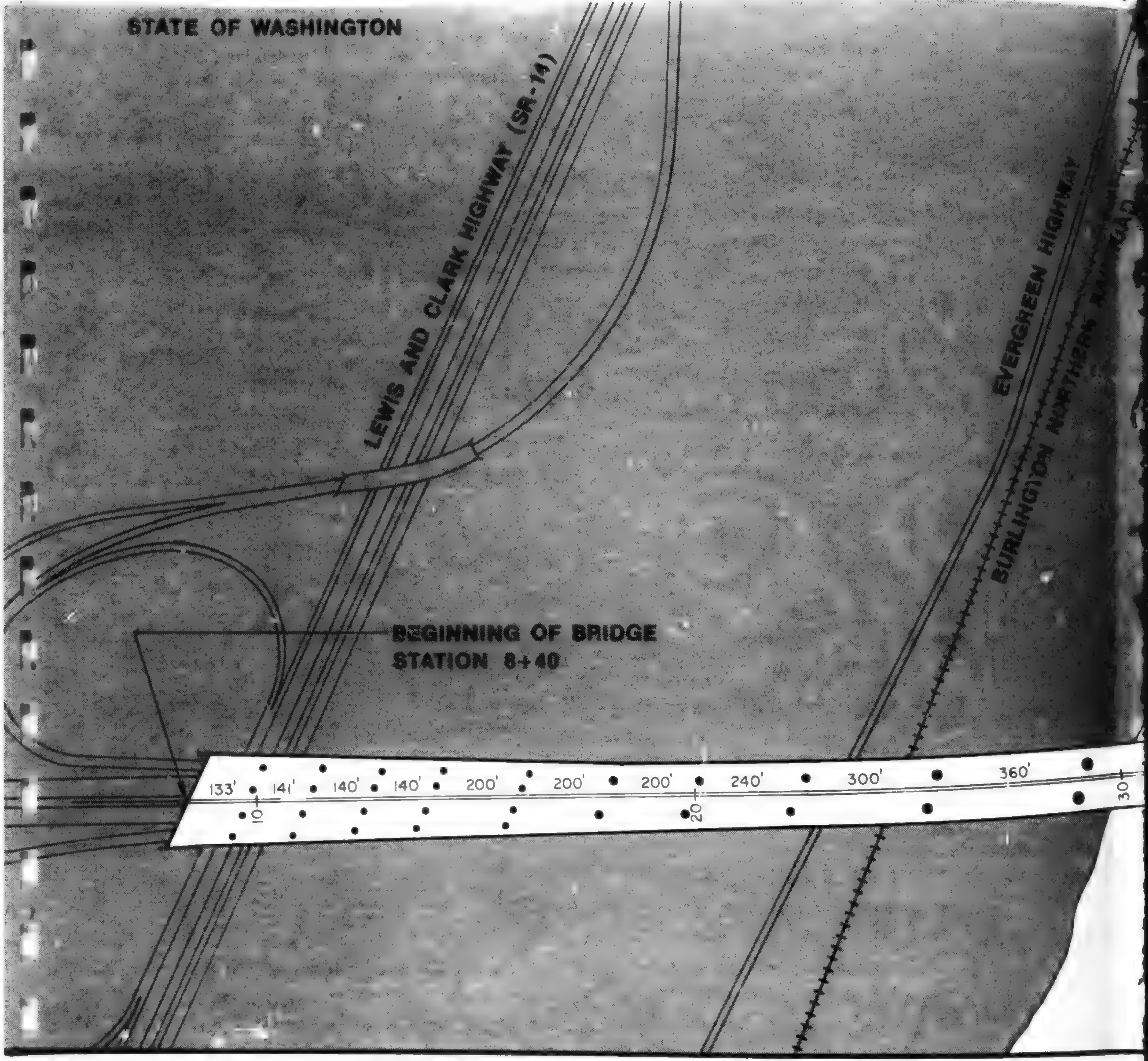
ELOPED ELEVATION


STATION 84+20
270'
240'
240'
80
90
160'
160'
200'
200'
200'
100
STATION 95+75
END OF FORMER
BRIDGE PLAN
STATION 85+00
GOVERNMENT ISLAND
SMALL

## ALTERNATIVE 2
## MINIMUM EMBANKMENT

**5**


200'
200'
200'
200'
200'
200'
200'
200'
200'
160'
160'
153'
110
120
SMALL BOAT CHANNEL
COLUMBIA RIVER
SOUTH CHANNEL
END OF BRIDGE
STATION 123+70
STATE OF OREGON
ELEV. 25
MARINE DRIVE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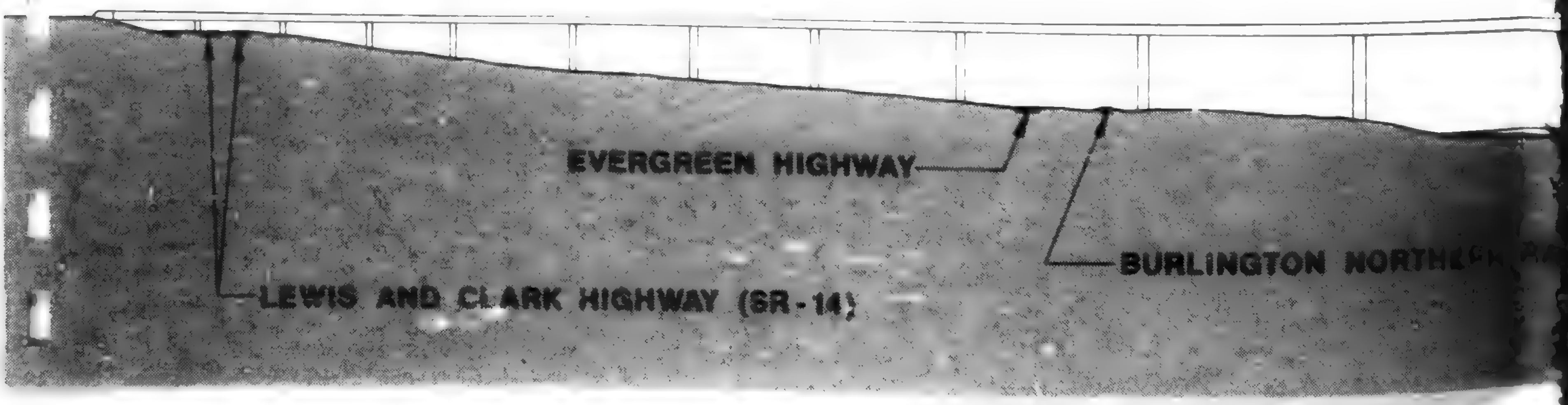
EVERGREEN HIGHWAY
BURLINGTON NORTHERN RA
BEGINNING OF BRIDGE
STATION 8+40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BURLINGTON NORTHE
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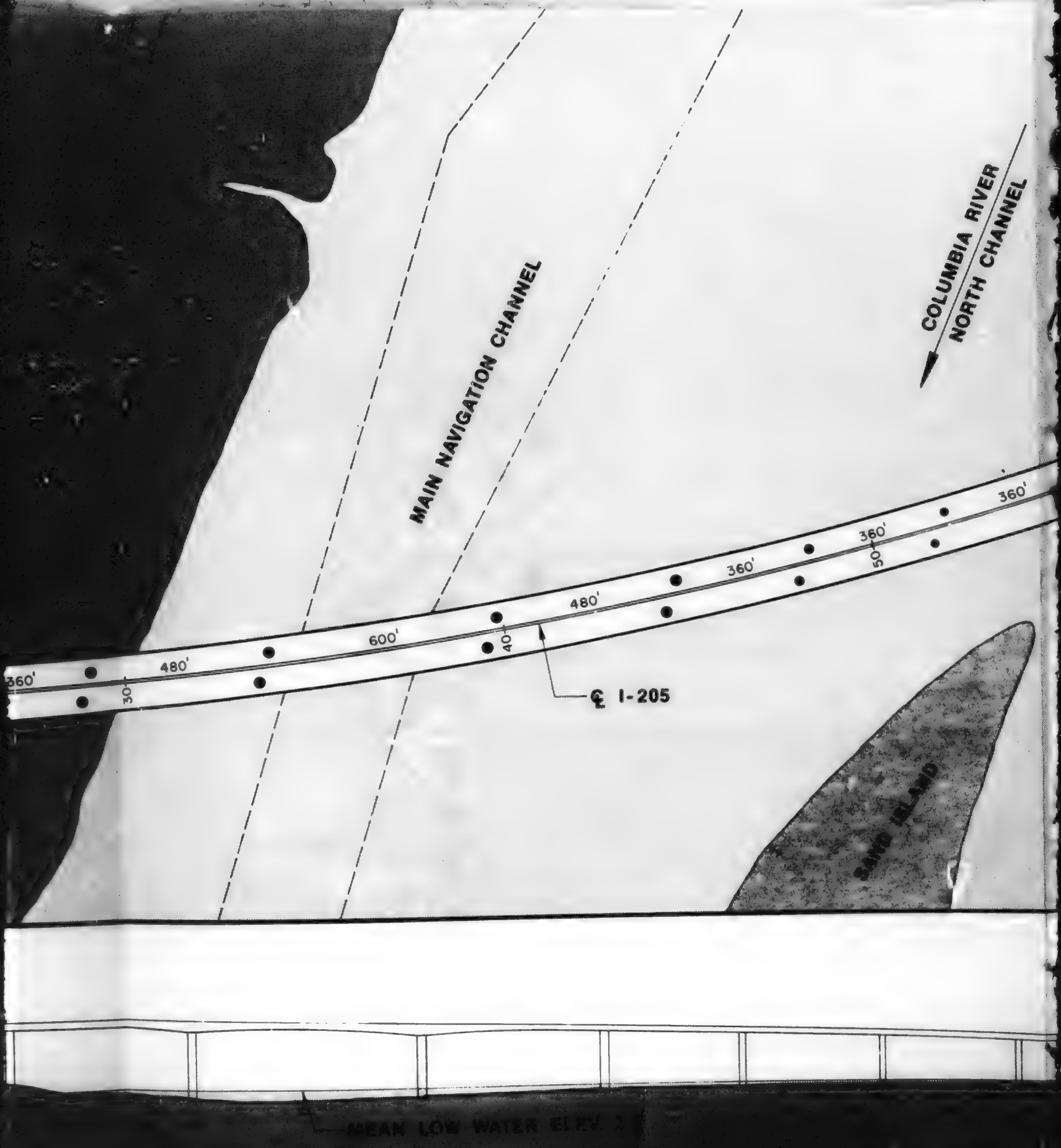
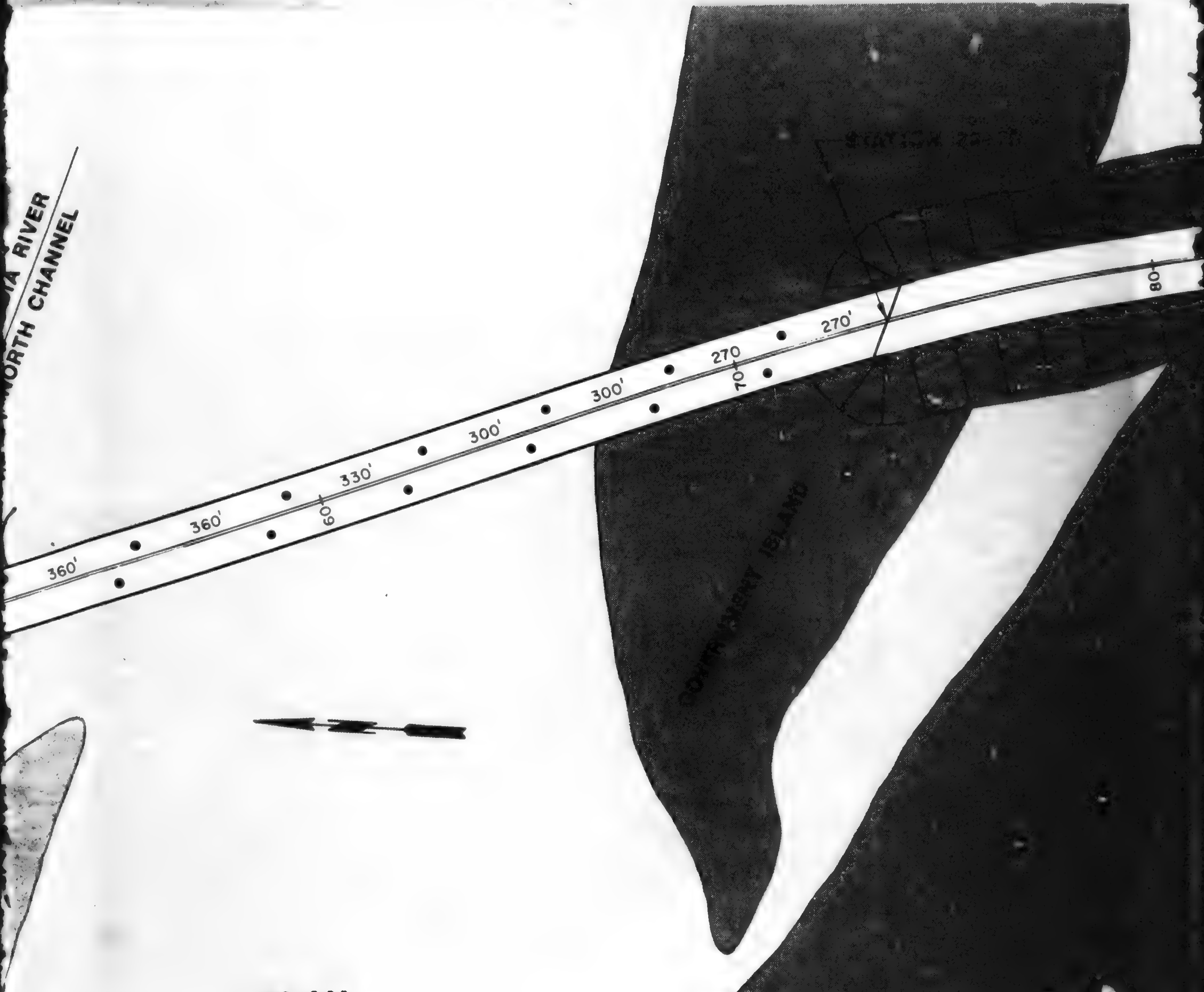
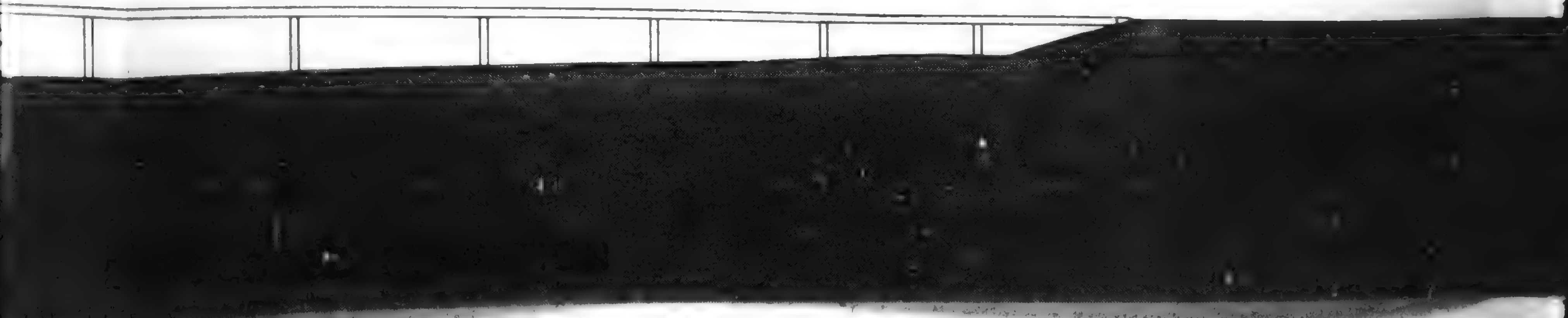
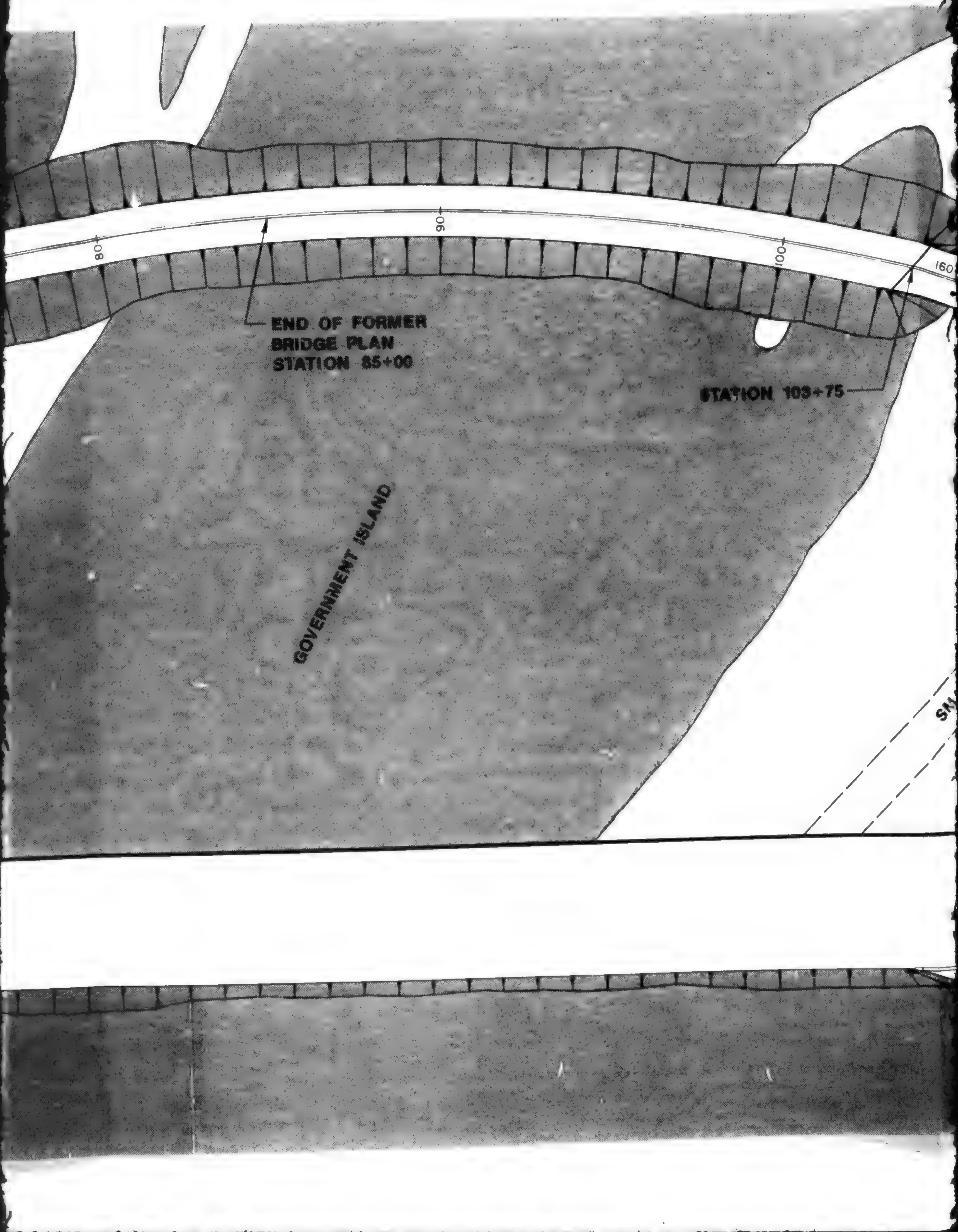

MAIN NAVIGATION CHANNEL
COLUMBIA RIVER
NORTH CHANNEL
℄ I-205
SAND ISLAND
MEAN LOW WATER ELEV. 2


IA RIVER
NORTH CHANNEL
ISLAND

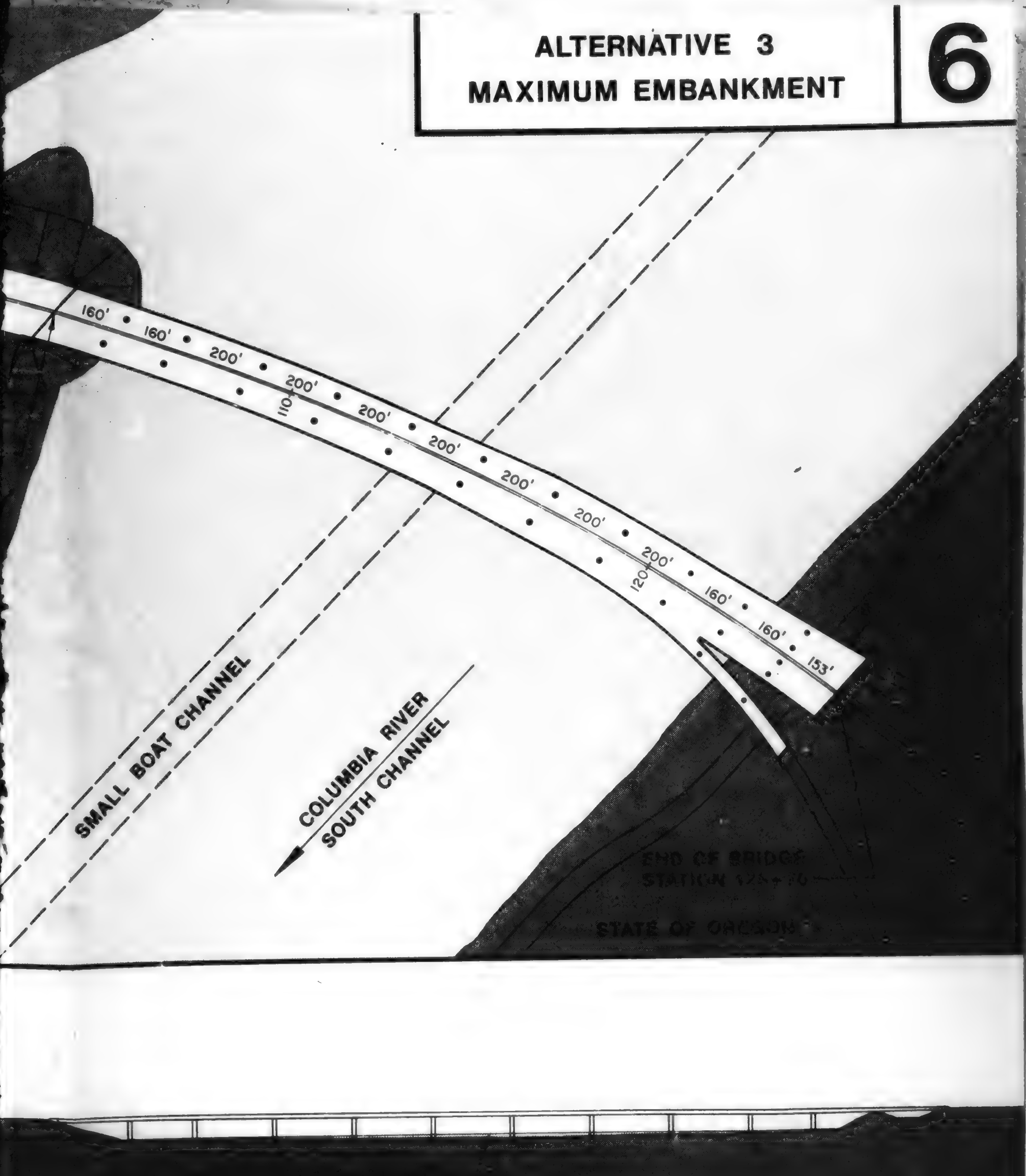
**PLAN**




80
90
100
160
END OF FORMER
BRIDGE PLAN
STATION 85+00
STATION 103+75
GOVERNMENT ISLAND

# ALTERNATIVE 3
# MAXIMUM EMBANKMENT

## 6


160'
160'
200'
200'
200'
200'
200'
200'
200'
160'
160'
153'
110
120
SMALL BOAT CHANNEL
COLUMBIA RIVER
SOUTH CHANNEL
END OF BRIDGE
STATION
STATE OF OREGON

8905 8

Consult

**OREGON STATE HIGHWAY DIVISION**

HIGHWAY BUILDING • SALEM, OREGON • 97310

TOM McCALL
GOVERNOR

F. B. KLABOE
Administrator of Highways

March 21, 1974

Mr. R. Jack Allen
Sverdrup & Parcel and Associates, Inc.
P O Box 369
505 106th NE
Bellevue, Washington 98004

NOTED
E. S. HUNTER

Dear Mr. Allen:

Columbia River (I-205) Bridge No. 9555
Advance Details and Study Plans

We are enclosing a letter from the Federal Highway Administration containing some discussion of preliminary details for the subject bridge. Following are our comments on these items.

1. Fender System:

It has been decided that a fender system will not be required for this structure, but that some method of bracing between the main channel piers should be considered.

2. Pier Design Alternate:

   A. Some definitive method of maintaining the position of the precast element in position should be developed.

   B. We agree

   C. We agree

RECEIVED
MAR 25 1974
OFFICE OF
ASSISTANT STATE HIGHWAY ENGINEER

3. Superstructure Details

We believe the specifications will provide sufficient latitude to permit cast-in-place construction as an alternate.

Would you please forward your comments on these items.

Very truly yours,

ORIGINAL SIGNED
WALTER J. HART

Walter J. Hart
Bridge Engineer

PMO/ag

cc E. S. Hunter
C. S. Gloyd w/encl.
R. L. Carroll w/encl.
R. N. Bothman w/encl.
G. L. Green

CH2M HILL
ENGINEERS PLANNERS ECONOMISTS

**CORNELL, HOWLAND, HAYES & MERRYFIELD**
200 Market Street, Suite 1200, Portland, Oregon 97201
Telephone: (503) 224-9190, TWX: 910-464-4720, Cable: CH2MHILL

**Portland Regional Office**

20 February 1974
Project No. P6163.9

Sverdrup & Parcel and Associates, Inc.
P. O. Box 369
Bellevue, WA 98004

Gentlemen:

Subject: I-205 Columbia River Bridge
South Channel Extension
Preliminary Foundation Investigation

Enclosed is our Preliminary Foundation Investigation report of the I-205 Columbia River Bridge (South Channel Extension). This study supplements our original report "Preliminary Foundation Investigation, I-205 Columbia River Bridge, Portland, Oregon, Vancouver, Washington," dated February 1971, and considers a planned extension of 4,200 feet to the south end of the proposed bridge. Our study has determined the subsurface conditions along the proposed extension, and developed preliminary foundation design criteria.

Foundation materials generally consist of dense unconsolidated sands overlying a very dense conglomerate and siltstone of the Troutdale formation. The siltstone underlies the conglomerate except near the Oregon shore where the conglomerate has been removed and the sands lie directly on the siltstone. Soft and compressible silty and clayey soils overlie the sands on Government Island and on the Oregon flood plain.

Point bearing piles driven to the dense conglomerate of the Troutdale formation are recommended on Government Island. Friction piles driven in the dense sands are recommended in the South Channel of the Columbia River and at the Oregon Flood Plain. The approach embankment on the Oregon flood plain (and on Government Island, if feasible) should be placed well in advance of pile driving to allow time for consolidation of the compressible silts and clays near the ground surface.

The final foundation design should not be based solely on this report, but should consider the results of the forthcoming Pile and Plate Foundation Tests. We do not anticipate the need for additional borings or tests unless appreciable changes occur in bridge location or design concepts.

We appreciate the opportunity of working with you on this major project. Please let us know how we can be of further assistance to you.

Sincerely,

Edward G. Worth, Director
Geotechnical Engineering

skw

SVERDRUP & PARCEL AND ASSOCIATES, INC.
BELLEVUE, WASHINGTON

# PRELIMINARY
# FOUNDATION INVESTIGATION
# FOR
# I-205 COLUMBIA RIVER BRIDGE
# SOUTH CHANNEL EXTENSION
# PORTLAND, OREGON - VANCOUVER, WASHINGTON

REGISTERED PROFESSIONAL ENGINEER
6280
OREGON
JULY 12, 1968
EDWARD G. WORTH

CH2M HILL
Engineers - Planners - Economists
Portland, Oregon

February 1974

Project No. P6163.9

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    Description of Project 1

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    Soil Characteristics 4

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26 Triaxial Shear Test Oregon Flood Plain
27 Triaxial Shear Test Oregon Flood Plain
28 Triaxial Shear Test Oregon Flood Plain
29 Pile Length vs. Capacity Government Island
30 Pile Length vs. Capacity South Channel Columbia River
31 Pile Length vs. Capacity Oregon Flood Plain Columbia River

# INTRODUCTION

## SCOPE AND PURPOSE

This report describes soil and foundation investigations for the proposed 4,200-foot South Channel extension of the I-205 bridge crossing of the Columbia River. This report supplements our original report "Preliminary Foundation Investigation, I-205 Columbia River Bridge, Portland, Oregon, Vancouver, Washington," dated February 1971. For the sake of clarity, the numbering of the figures and tables will be continued from those in the 1971 report. This report supersedes our Preinvestigation letter report of the proposed South Channel Extension, dated 2 August 1973.

The purpose of the investigation was to determine subsurface conditions along the extended bridge alignment, and to develop foundation design criteria for the proposed extension. The investigation included making borings, sampling and classifying the materials, making groundwater elevation determinations, performing laboratory tests to determine the engineering properties of the materials, and making engineering analysis for the proposed foundations.

## DESCRIPTION OF PROJECT

A general description of the project is given in our 1971 report. The plans and schedule for the expansion of the Portland International Airport by filling the South Channel of the Columbia River between the Oregon shore and Government Island have been made somewhat indefinite. Therefore, the possibility of extending the bridge from the originally planned south terminus at Government Island to the Oregon shore is the alternate considered by this supplemental investigation, as shown on Figure 10.

# FOUNDATION INVESTIGATION

## GEOLOGIC HISTORY AND TOPOGRAPHY

The geologic history and the topography on the Washington slope and the river is described in the 1971 report. The south end of the proposed extension will be located just south of Marine Drive on the flood plain of the Columbia River. Marine Drive is located atop the levee embankment, approximately 20 feet above the south flood plain and 40 feet above the mean low water level of the Columbia River.

## SUBSURFACE EXPLORATION

The subsurface explorations for the proposed bridge extension consisted of five borings on Government Island, nine borings in the south channel, and three borings on the Oregon flood plain, located as shown on Figure 11. Drilling was accomplished between 8 August 1973 and 10 October 1973 by both truck- and barge-mounted rotary drill rigs using a bentonite drilling mud to prevent caving of the holes. Drilling mud was circulated to remove the drill cuttings, and steel casing was required in some borings because of losses of bentonite drilling mud into open gravel formations. Disturbed samples were obtained using a 2-inch OD split barrel sampler and a 2-inch OD split barrel sampler with metal liner inserts. Undisturbed samples were obtained using both 2-inch and 3-inch thin-walled Shelby tube samplers. All samples obtained with the split barrel sampler were driven in the manner prescribed for the Standard Penetration Test. In the fine grained but very stiff zones of the Troutdale formation where the Shelby tubes could not be pushed, they were driven and the blow counts recorded.

Groundwater measurements were made in the borings located on land after the bentonite drilling mud had been flushed out and approximately 12 to 16 hours had elapsed. All the truck-drilled borings were located by station and offset from the bridge centerline staked in the field. Barge-drilled borings were located by triangulation from control monuments established by the Oregon Highway Department.

### LABORATORY TESTS

The significant properties of the foundation soils were determined by the same laboratory tests described in the 1971 report. A summary of the field borings and laboratory test data is presented in Table 2, Soil Test Data.

## SOIL AND GROUNDWATER PROFILE

### SOIL PROFILE

Foundation materials for the proposed bridge extension consist of unconsolidated coarse to fine sand, underlain by a dense sandy gravel or conglomerate--the upper part of the Troutdale formation. This dense conglomerate is, in turn, underlain by a member of the Troutdale formation that consists mainly of dense sands and hard silts and clays.

On Government Island and the Oregon flood plain, the coarse to fine sand deposit is overlain by a compressible layer of silt and clay. The thickness of the surficial silt and clay on Government Island varies from 10 to 30 feet and, on the Oregon flood plain, from 35 to 45 feet. The Troutdale formation occurs at a depth of 100 to 120 feet from Government Island to mid South Channel where it abruptly increases in depth to about 200 feet at Marine Drive. The dense gravel conglomerate of the Troutdale formation decreases in thickness from about 40 feet at Government Island to zero at Marine Drive. The groundwater elevations on Government Island and the Oregon flood plain appear to correspond quite closely to the stage of the Columbia River. The profile of subsurface materials and groundwater is shown on Figure 12.

## SOIL CHARACTERISTICS

### Government Island (Borings 38 through 42)

The upper 5 to 15 feet of soil on Government Island is soft to medium stiff silt and clay, mixed with some fine-grained sand. The silts and clays are compressible, as indicated by a consolidation test of the material. The specific consolidation characteristics will be discussed in conjunction with the surficial soils of the Oregon flood plain.

Underlying the fine grained soils is about 100 feet of river deposited sand, inturn underlain by the Troutdale formation. These materials correspond to the materials described in the 1971 report as riverbed materials (Borings 21 through 37). Figure 13 presents the gradation and Figure 14 presents the summary of Standard Penetration Test driving resistances of the river sands.

### South Channel of the Columbia River (Borings 43 through 51)

The river-deposited sands of the South Channel correspond to the materials described in the 1971 report as Riverbed materials (Borings 21 through 37) located in the North Channel. Underlying the river sands is the continuation of the same Troutdale formation sequence of approximately 10 to 40 feet of dense gravel conglomerate, underlain by a siltstone-claystone member of generally very stiff but variable consistency. Samples of the highly preconsolidated siltstone-claystone material are difficult to obtain, and a smaller Shelby tube (2-inch diameter) was used in attempt to obtain better recovery. Results of consolidation tests in this material are presented in Figures 15 through 17.

The compression index, $C_c$, of 0.144 for the sample from boring 51 (Figure 17) agrees quite closely with the $C_c$ values from borings 28 and 34 made in 1971. The first consolidation test of the sample from boring 47 (Figure 15) indicates a much higher value of $C_c$, but moisture content of this sample was 52 percent compared to 23 to 31 percent for the other samples of this material. Because of this discrepancy, a second consolidation test from the same sample of boring 47 was performed (Figure 16), and the results agree with the tests from boring 28, 31, and 51; $C_c$ of 0.173 and a moisture content of 22 percent. Therefore the first consolidation test from boring 47 (Figure 15) is not considered to be representative of the very stiff silts and clays.

### Oregon Flood Plain
### (Borings 52 through 54)

The river sand in this area is overlain by a compressible layer of silt and clay mixed with small amounts of fine sand, varying in thickness from 35 to 45 feet.

The consolidation characteristics of the surficial soils of Government Island and the Oregon flood plain were determined by tests shown in Figures 18 through 24. The samples tested varied from silt to clay with natural moisture contents ranging from 26 to 52 percent. Although the constructed field curves indicate some preconsolidation of the materials, the geologic history of the area suggests that the materials would probably be normally consolidated.

The coefficient of compression, $C_v$, is generally on the order of several hundred feet squared per year with the exception of one sample for which $C_v$ is on the order of tens of feet squared per year.

The strength characteristics of the silt and clay were determined by consolidated undrained triaxial tests shown on Figures 25 through 28. The total stress strength envelopes have a friction angle ($\phi$) of 14 to 18 degress with a 0.2 to 0.8 KSF cohesion. The effective stress envelopes have a friction angle of 30 to 35 degrees and a cohesion of less than 0.5 KSF.

Beneath the compressible layer, are river sands similar to those found in the South Channel and Government Island. Underlying the river sands is the Troutdale formation, similar in character as described in other areas.

## FOUNDATION DESIGN CRITERIA

### GENERAL CONSIDERATIONS

The foundations of the bridge extension can be divided into several categories based on the nature of the soil profile and circumstances of construction.

### Government Island (Borings 38 through 42)

Construction will be by land methods, and may consist of either a continuation of the bridge section or an embankment section.

1. Bridge piers will be supported by either friction piles or end bearing piles. Friction pile capacities and lengths were previously estimated in our Preinvestigation Report; these estimates have been

revised and are presented in Figure 29. End bearing piles about 120 feet long would be as described for other sections of the project.

2. An embankment section across Government Island would be constructed of compacted river sand. The silt and clay materials near ground surface could be removed to preclude settlement of the embankment; however, the anticipated settlement should amount to not more than a few inches and should occur quite rapidly, perhaps in a matter of only weeks. If the silt and clay materials are removed, the stripped materials could be used for slope cover to help establish vegetation on the embankment slopes. Abutments of bridge sections at both ends of the embankment would be as described in the 1971 report.

## South Channel (Borings 43 through 51)

Construction of the foundations will be by water methods, and piers will be pile supported. Piles may be friction piles or end bearing piles. Friction pile capacities and lengths were previously estimated in our Preinvestigation Report; these estimates have been revised and are presented in Figure 30. The friction pile estimates are based on an assumed scour depth of 30 feet; the actual allowance is not known at this time. End bearing piles would be driven through the coarse to fine sand and founded on the dense Troutdale conglomerate. The conglomerate is located at about elevation -110 at Government Island, slopes down to about elevation -140 near Station 120+00, and then slopes down abruptly to elevation -200 beneath Marine Drive. End bearing piles would be as described for other sections of the project.

South Flood Plain Abutments (Borings 52 through 54)

Construction will be land methods, and foundations will be located on the flood plain and in the approach embankments. The embankments will probably be constructed of compacted granular material (sand). Underlying the embankments is a layer 35 to 45 feet thick of soft and compressible sand, silt, and clay. This layer will consolidate when loaded by the embankment, perhaps producing settlements on the order of several inches to as much as one to two feet. Because the compressible deposit is much thicker than on Government Island, the consolidation will be much slower, probably taking on the order of several months to attain the significant percentage of the settlement.

Ideally, construction of the abutments should take place after the embankments have been constructed and all the settlement has taken place. Otherwise, the piling must either be isolated from the embankments or must be designed for downdrag forces from the embankments. Point bearing piles do not appear to be a logical choice, since the Troutdale formation is over 200 feet deep at this location. Friction piles driven into the river-deposited sand appear to be the best choice for the abutment foundations. Friction pile capacities and lengths were previously estimated in our Preinvestigation Report; these estimates have been revised and are presented in Figure 31.

## DESIGN CRITERIA

Two types of foundations are considered for the proposed extension:

- piers supported by friction or end bearing piles, and
- an embankment across Government Island.

## Friction and End Bearing Piles

The design criteria for piles are described in the 1971 report.

## Embankments

The embankments should be designed for the following general considerations: (a) allowable bearing capacity of underlying strata and the stability of the embankment itself; and (b) the amount and rate of consolidation of underlying compressible layers.

1. The stability of the embankment and the underlying foundation strata can most accurately be analyzed by conventional slip circle (Bishop) or sliding wedge (Morgenstern-Price) techniques. The several load and response conditions of the embankment-foundations system can be examined: the end-of-construction condition using undrained shear strength, the fully consolidated condition using drained shear strength, and others, including seismic load conditions at any time during the construction or service life of the embankment. Approximate methods of stability (Taylor stability factor, $N_s$, approach) and bearing capacity (Terzaghi bearing capacity equation) analysis can also be used to evaluate the stability of the embankment and foundation, particularly where the conditions and soil parameters can be conservatively taken and the results indicate no particular concern for the stability of the embankment and foundation.

2. The consolidation of underlying compressible materials can be estimated by conventional soil mechanics techniques. The amount of settlement can be estimated by:

$$S = \frac{C_c}{1 + e_0} H \log \frac{p_0 + \Delta p}{p_0}$$

where: $S$ = settlement
$C_c$ = compression index
$e_0$ = in-situ void ratio
$H$ = thickness of compressible strata
$p_0$ = in-situ effective vertical stress
$\Delta p$ = change in effective vertical stress.

The rate of consolidation can be estimated by:

$$t = \frac{T_v H^2}{C_v}$$

where: $t$ = time
$T_v$ = time factor for a given percent consolidation (U)
$H$ = length of drainage path of a compressible layer
$C_v$ = coefficient of consolidation.

## DESIGN RECOMMENDATIONS

### Government Island (Borings 38 through 42)

1. Friction piles driven to the required penetration and resistance in the river sands or end bearing piles driven to refusal on the dense conglomerate layer of the Troutdale formation. Results of the pile load tests to be performed will influence this choice.

2. Steel H piles or prestressed concrete piles, depending on the choice of end bearing or friction piles.

3. Alternate design of embankment section is technically feasible. Remove all silt and clay foundation material before embankment construction. Construct embankment of sand, with 2.5:1 slopes. Compact sand to 80 percent relative density, stabilize slopes for surface erosion.

South Channel (Borings 43 through 47)

1. End bearing piles driven to refusal on very dense conglomerate member of Troutdale formation.

2. Nondisplacement steel H piles are recommended for driving to refusal.

South Channel (Borings 48 through 51)

1. Friction piles driven to the required penetration and resistance in the river-deposit sand. Type of pile (Steel H or prestressed concrete) to be selected based on results of pile load tests to be performed.

2. Steel H piles are attractive because of their flexibility. They can be easily cut off under water, and the cutoffs are savageable. No jetting should be used.

Oregon Flood Plain and South Abutment
(Borings 52 through 54)

1. Friction piles driven through the compressible layers of the flood plain into the river sands and through

the completed approach embankment, after the embankment settlement has taken place. Settlement of the approach embankment should be monitored.

2. Type of pile (steel H or prestressed concrete) to be selected based on results of pile load tests. No jetting should be used.

# TABLE 2

| SAMPLE NUMBER | DEPTH (FEET) | DESCRIPTION OF MATERIAL | CLASSIFI-CATION (AASHO) | "N" (BL/FT) | MOISTURE P.L. (%) | MOISTURE ω (%) | MOISTURE L.L. (%) | GRADATION % PASSING #4 | GRADATION % PASSING #10 | GRADATION % PASSING #40 | GRADATION % PASSING #200 | γd (LBS/FT³) | TRIAXIAL SHEAR | CONSOLI-DATION |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ST-1 | 2.5-4.5 | TOP: BROWN FINE SANDY SILTY CLAY | A-7.5 | – | 25 | 30 | 42 | | | | | 85 | | See Fig18 |
| – | – | BOTTOM: BROWN FINE SANDY SILT | A-4 | – | 26 | 20 | 31 | | | | | | | |
| SS-1 | 4.5-6 | BROWN FINE SANDY SILT | A-4 | 15 | 25 | 18 | 26 | | | | | | | |
| SS-2 | 10-11.5 | GRAYISH BROWN SILTY FINE SAND | A-3 | 15 | | | | | | | | | | |
| – | 14 | G.W.T. (9/8/73) | – | – | | | | | | | | | | |
| SS-3 | 15-16.5 | GRAYISH BROWN SILTY FINE SAND | A-3 | 18 | | | | | | | | | | |
| SS-4 | 20-21.5 | GRAYISH BROWN SILTY FINE SAND | A-3 | 24 | | | | | | | | | | |
| SS-5 | 25-26.5 | GRAY COARSE TO FINE SAND | A-1-b | 18 | | | | | | | | | | |
| SS-6 | 30-31.5 | GRAY COARSE TO FINE SAND | A-1-b | 20 | | | | 96 | 93 | 48 | 7 | | | |
| S3-7 | 35-36.5 | DARK GRAY FINE SAND | A-3 | 16 | | | | | | | | | | |
| SS-8 | 40-41.5 | DARK GRAY FINE SAND | A-3 | 38 | | | | | | | | | | |
| SS-9 | 45-46.5 | BROWNISH GRAY FINE SAND | A-3 | 24 | | | | | | | | | | |
| SS-10 | 50-51.5 | BROWNISH GRAY FINE SAND | A-3 | 25 | | | | | | | | | | |
| SS-11 | 55-56.5 | BROWNISH GRAY FINE SAND | A-3 | 27 | | | | | 100 | 93 | 9 | | | |
| SS-12 | 60-61.5 | BROWNISH GRAY FINE SAND | A-3 | 33 | | | | | | | | | | |
| SS-13 | 65-66.5 | BROWNISH GRAY FINE SAND | A-3 | 41 | | | | | | | | | | |
| SS-14 | 70-71.5 | BROWNISH GRAY FINE SAND | A-3 | 32 | | | | | | | | | | |
| SS-15 | 75-76.5 | BROWNISH GRAY FINE SAND | A-3 | 45 | | | | | | | | | | |
| SS-16 | 80-81.5 | BROWNISH GRAY FINE SAND | A-3 | 34 | | | | | | | | | | |
| SS-17 | 85-86.5 | BROWNISH GRAY FINE SAND | A-3 | 51 | | | | | | | | | | |
| SS-18 | 90-91.5 | BROWNISH GRAY FINE SAND | A-3 | 50 | | | | | | | | | | |
| SS-19 | 95-96.5 | BROWNISH GRAY FINE SAND | A-3 | 63 | | | | | | | | | | |
| SS-20 | 100-101.5 | BROWNISH GRAY FINE SAND | A-3 | 52 | | | | | | | | | | |
| SS 21 | 105-106.5 | BROWNISH GRAY FINE SAND | A-3 | 47 | | | | | | | | | | |
| SS-22 | 110-111.5 | BROWNISH GRAY FINE SAND | A-3 | 53 | | | | | 100 | 93 | 10 | | | |
| SS-23 | 115-116.5 | BROWNISH GRAY FINE SAND | A-3 | 63 | | | | | | | | | | |
| SS-24 | 130-130 | DARK GRAY SANDY GRAVEL (CONGLOMERATE) | A-1 | 55/½" | | | | | | | | | | |
| – | 130 | END OF HOLE | – | – | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |

PROJECT I-205 COLUMBIA RIVER BRIDGE STATION & OFFSET OREGON 85+00. NO OFFSET

BORING NO. 38 GROUND ELEVATION 21.8 M.S.L.

**SOIL TEST DATA**

CH2M HILL

## TABLE 2 (Cont'd)

| SAMPLE NUMBER | DEPTH (FEET) | DESCRIPTION OF MATERIAL | CLASSIFI-CATION (AASHO) | "N" (BL/FT) | MOISTURE |  |  | GRADATION % PASSING |  |  |  | $\gamma_d$ (LBS/FT$^3$) | TRIAXIAL SHEAR | CONSOLI-DATION |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  |  |  |  |  | P.L. (%) | w (%) | L.L. (%) | #4 | #10 | #40 | #200 |  |  |  |
| SS-1 | 5-6.5 | BROWN FINE SANDY SILT | A-4 | 9 | N/P | – | – |  |  | 100 | 52 |  |  |  |
| SS-2 | 10-11.5 | BROWN FINE SANDY SILT | A-4 | 8 | N/P | 25 | – |  |  |  |  |  |  |  |
| SS-3 | 15-16.5 | BROWNISH GRAY SILTY FINE SAND | A-3 | 17 |  |  |  |  |  |  |  |  |  |  |
| – | 17.2 | G.W.T. (9/7/73) | – | – |  |  |  |  |  |  |  |  |  |  |
| SS-4 | 20-21.5 | BROWNISH GRAY COARSE TO FINE SAND | A-3 | 18 |  |  |  | 100 | 97 | 70 | 8 |  |  |  |
| SS-5 | 25-26.5 | BROWN SILTY FINE SAND | A-3 | 13 |  |  |  |  |  |  |  |  |  |  |
| SS-6 | 30-31.5 | BROWNISH GRAY SILTY FINE SAND | A-3 | 14 |  |  |  |  |  |  |  |  |  |  |
| SS-7 | 35-36.5 | DARK GRAY COARSE TO FINE SAND | A-3 | 15 |  |  |  |  |  |  |  |  |  |  |
| SS-8 | 40-41.5 | GRAY SILTY FINE SAND | A-3 | 24 |  |  |  |  |  |  |  |  |  |  |
| SS-9 | 45-46.5 | GRAYISH BROWN FINE SAND | A-3 | 25 |  |  |  | 99 | 96 | 71 | 6 |  |  |  |
| SS-10 | 50-51.5 | GRAYISH BROWN FINE SAND | A-3 | 20 |  |  |  |  |  |  |  |  |  |  |
| SS-11 | 55-56.5 | DARK GRAY FINE SAND | A-3 | 19 |  |  |  |  |  |  |  |  |  |  |
| SS-12 | 60-61.5 | DARK GRAY FINE SAND | A-3 | 17 |  |  |  |  | 100 | 69 | 5 |  |  |  |
| SS-13 | 65-66.5 | DARK GRAY FINE SAND | A-3 | 22 |  |  |  |  |  |  |  |  |  |  |
| SS-14 | 70-71.5 | DARK GRAY FINE SAND | A-3 | 19 |  |  |  |  |  |  |  |  |  |  |
| SS-15 | 75-76.5 | BROWNISH GRAY FINE SAND | A-3 | 25 |  |  |  |  |  |  |  |  |  |  |
| SS-16 | 80-81.5 | BROWNISH GRAY FINE SAND | A-3 | 32 |  |  |  |  |  |  |  |  |  |  |
| SS-17 | 85-86.5 | BROWNISH GRAY FINE SAND | A-3 | 25 |  |  |  |  |  |  |  |  |  |  |
| SS-18 | 90-91.5 | BROWNISH GRAY FINE SAND | A-3 | 60 |  |  |  |  |  |  |  |  |  |  |
| SS-19 | 95-96.5 | BROWNISH GRAY FINE SAND | A-3 | 48 |  |  |  |  |  |  |  |  |  |  |
| SS-20 | 100-101.5 | BROWNISH GRAY FINE SAND | A-3 | 59 |  |  |  |  |  |  |  |  |  |  |
| SS-21 | 105-106.5 | BROWNISH GRAY FINE SAND | A-3 | 52 |  |  |  |  |  |  |  |  |  |  |
| SS-22 | 110-111.5 | BROWNISH GRAY FINE SAND | A-3 | 54 |  |  |  |  |  |  |  |  |  |  |
| SS-23 | 115-116.5 | BROWNISH GRAY FINE SAND | A-3 | 58 |  |  |  |  |  |  |  |  |  |  |
| SS-24 | 120-121.5 | BROWNISH GRAY FINE SAND | A-3 | 67 |  |  |  |  |  |  |  |  |  |  |
| SS-25 | 128-129.5 | DARK GRAY SANDY GRAVEL (CONGLOMERATE) | A-1 | 67 |  |  |  |  |  |  |  |  |  |  |
| – | 133 | END OF HOLE | – | – |  |  |  |  |  |  |  |  |  |  |

PROJECT I-205 COLUMBIA RIVER BRIDGE

STATION & OFFSET OREGON 88+30, NO OFFSET

BORING NO. 39

GROUND ELEVATION 21.8 M.S.L.

## SOIL TEST DATA

CH2M HILL

## TABLE 2 (Cont'd)

| SAMPLE NUMBER | DEPTH (FEET) | DESCRIPTION OF MATERIAL | CLASSIFICATION (AASHO) | "N" (BL/FT) | MOISTURE |  |  | GRADATION % PASSING |  |  |  | $\gamma_d$ (LBS/FT$^3$) | TRIAXIAL SHEAR | CONSOLIDATION |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  |  |  |  |  | P.L. (%) | w (%) | L.L. (%) | #4 | #10 | #40 | #200 |  |  |  |
| SS-1 | 5-6.5 | BROWN FINE SANDY SILT | A-4 | 9 | 26 | 20 | 27 |  |  |  |  |  |  |  |
| SS-2 | 10-11.5 | BROWN FINE SANDY SILT | A-4 | 6 | N/P | 27 | – |  |  |  |  |  |  |  |
| SS-3 | 15-16.5 | GRAYISH BROWN SILTY FINE SAND | A-3 | 17 |  |  |  |  |  |  |  |  |  |  |
| – | 16.5 | G.W.T. (8/31/73) | – | – |  |  |  |  |  |  |  |  |  |  |
| SS-4 | 20-21.5 | GRAYISH BROWN SILTY FINE SAND | A-3 | 21 |  |  |  |  |  |  |  |  |  |  |
| SS-5 | 25-26.5 | GRAYISH BROWN SILTY FINE SAND | A-3 | 16 |  |  |  |  |  |  |  |  |  |  |
| SS-6 | 30-31.5 | GRAYISH BROWN SILTY COARSE TO FINE SAND | A-1-b | 34 |  |  |  | 99 | 91 | 46 | 7 |  |  |  |
| SS-7 | 35-36.5 | GRAYISH BROWN SILTY COARSE TO FINE SAND | A-1-b | 25 |  |  |  |  |  |  |  |  |  |  |
| SS-8 | 40-41.5 | GRAYISH BROWN FINE SAND | A-3 | 30 |  |  |  |  |  |  |  |  |  |  |
| SS-9 | 45-46.5 | GRAYISH BROWN FINE SAND | A-3 | 48 |  |  |  |  |  |  |  |  |  |  |
| SS-10 | 50-51.5 | GRAYISH BROWN FINE SAND | A-3 | 32 |  |  |  |  |  |  |  |  |  |  |
| SS-11 | 55-56.5 | DARK GRAY SILTY FINE SAND | A-3 | 29 |  |  |  |  |  |  |  |  |  |  |
| SS-12 | 60-61.5 | DARK GRAY SILTY FINE SAND | A-3 | 19 |  |  |  |  |  |  |  |  |  |  |
| SS-13 | 65-66.5 | GRAYISH BROWN FINE SAND | A-3 | 23 |  |  |  |  |  |  |  |  |  |  |
| SS-14 | 70-71.5 | GRAYISH BROWN FINE SAND | A-3 | 47 |  |  |  |  |  |  |  |  |  |  |
| SS-15 | 75-76.5 | SAMPLE MISSING | – | 59 |  |  |  |  |  |  |  |  |  |  |
| SS-16 | 80-81.5 | BROWN FINE SAND | A-3 | 42 |  |  |  |  |  |  |  |  |  |  |
| SS-17 | 85-86.5 | BROWNISH GRAY FINE SAND | A-3 | 44 |  |  |  |  |  |  |  |  |  |  |
| SS-18 | 90-91.5 | BROWNISH GRAY FINE SAND | A-3 | 49 |  |  |  |  |  |  |  |  |  |  |
| SS-19 | 95 96.5 | BROWNISH GRAY FINE SAND | A-3 | 41 |  |  |  |  |  |  |  |  |  |  |
| SS-20 | 100-101.5 | DARK BROWN SANDY SILT (SOME ORGANICS) | A-5 | 19 | N/P | 53 | 63 |  | 100 | 86 | 56 |  |  |  |
| SS-21 | 105-106.5 | DARK GRAYISH BROWN SILTY FINE SAND | A-2-4 | 58 | N/P | – | – | 98 | 97 | 91 | 12 |  |  |  |
| SS-22 | 110-111.5 | BROWNISH GRAY FINE SAND | A-3 | 55 |  |  |  |  |  |  |  |  |  |  |
| SS-23 | 115-116.5 | BROWNISH GRAY FINE SAND | A-3 | 48 |  |  |  |  |  |  |  |  |  |  |
| SS-24 | 120-121.5 | BROWNISH GRAY FINE SAND | A-3 | 41 |  |  |  |  |  |  |  |  |  |  |
| SS-25 | 130-131.5 | DARK GRAYISH BROWN SANDY GRAVEL (CONGLOMERATE) | A-1 | 62 |  |  |  |  |  |  |  |  |  |  |
| SS-26 | 135-135.8 | NO RECOVERY | – | 60/3" |  |  |  |  |  |  |  |  |  |  |
| – | 135.8 | END OF HOLE | – | – |  |  |  |  |  |  |  |  |  |  |

PROJECT I-205 COLUMBIA RIVER BRIDGE

STATION & OFFSET OREGON 91+20, NO OFFSET

BORING NO. 40

GROUND ELEVATION 22.3 M.S.L.

**SOIL TEST DATA**

CH2M HILL

## TABLE 2 (Cont'd)

| SAMPLE NUMBER | DEPTH (FEET) | DESCRIPTION OF MATERIAL | CLASSIFICATION (AASHO) | "N" (BL/FT) | MOISTURE P.L. (%) | MOISTURE w (%) | MOISTURE L.L. (%) | GRADATION % PASSING #4 | GRADATION % PASSING #10 | GRADATION % PASSING #40 | GRADATION % PASSING #200 | $\gamma_d$ (LBS/FT$^3$) | TRIAXIAL SHEAR | CONSOLIDATION |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SS-1 | 2.5-4 | BROWN SILTY CLAY | A-7-5 | 4 | 31 | 44 | 47 | | | | | | | |
| SS-2 | 5-6.5 | TOP: BROWN SANDY SILTY CLAY | A-7-5 | 6 | | | | | | | | | | |
| – | – | BOTTOM: BROWNISH GRAY SILTY SAND | A-2-4 | – | | | | | | | | | | |
| SS-3 | 10-11.5 | BROWN COARSE TO FINE SAND | A-1-b | 14 | | | | | | | | | | |
| – | 13.2 | G.W.T. (8/28/73) | – | – | | | | | | | | | | |
| SS-4 | 15-16.5 | BROWN SLIGHTLY SILTY FINE SAND | A-3 | 13 | | | | | | | | | | |
| SS-5 | 20-21.5 | BROWNISH GRAY SLIGHTLY SILTY FINE SAND | A-3 | 18 | | | | | | | | | | |
| SS-6 | 25-26.5 | GRAY SLIGHTLY SILTY FINE SAND | A-3 | 13 | | | | | | | | | | |
| SS-7 | 30-31.5 | GRAY SLIGHTLY SILTY FINE SAND | A-3 | 15 | | | | | | | | | | |
| SS-8 | 35-36.5 | GRAY COARSE TO FINE SAND | A-3 | 19 | | | | | | | | | | |
| SS-9 | 40-41.5 | GRAY COARSE TO FINE SAND | A-3 | 18 | | | | | 100 | 57 | 5 | | | |
| SS-10 | 45-46.5 | GRAY COARSE TO FINE SAND | A-3 | 23 | | | | | 100 | 90 | 9 | | | |
| SS-11 | 50-51.5 | GRAY COARSE TO FINE SAND | A-3 | 18 | | | | | | | | | | |
| SS-12 | 55-56.5 | BROWNISH GRAY FINE SAND | A-3 | 29 | | | | | | | | | | |
| SS-13 | 60-61.5 | BROWNISH GRAY FINE SAND | A-3 | 36 | | | | | | | | | | |
| SS-14 | 65-66.5 | BROWNISH GRAY FINE SAND | A-3 | 27 | | | | | | | | | | |
| SS-15 | 70-71.5 | BROWNISH GRAY FINE SAND | A-3 | 38 | | | | | | | | | | |
| SS-16 | 75-76.5 | BROWNISH GRAY FINE SAND | A-3 | 50 | | | | | | | | | | |
| SS-17 | 80-81.5 | BROWNISH GRAY FINE SAND | A-3 | 48 | | | | | | | | | | |
| SS-18 | 85-86.5 | BROWNISH GRAY FINE SAND | A-3 | 46 | | | | | | | | | | |
| SS-19 | 90-91.5 | BROWNISH GRAY FINE SAND | A-3 | 43 | | | | | | | | | | |
| SS-20 | 95-96.5 | GRAY COARSE TO FINE SAND | A-1-b | 58 | | | | | | | | | | |
| SS-21 | 100-101.5 | DARK GRAY FINE SAND | A-3 | 39 | | | | | | | | | | |
| SS-22 | 105-106.5 | GRAYISH BROWN SILTY FINE SAND | A-3 | 51 | | | | | | | | | | |
| SS-23 | 110-111.5 | GRAY FINE SAND | A-3 | 66 | | | | | | | | | | |
| SS-24 | 115-116.5 | GRAY COARSE TO FINE SAND | A-1-b | 57 | | | | | | | | | | |
| SS-25 | 120-120.8 | GRAY COARSE SANDY GRAVEL (CONGLOMERATE) | A-1-b | 53/3" | | | | | | | | | | |
| SS-26 | 130-130 | NO RECOVERY | – | 50/½" | | | | | | | | | | |
| – | 130.0 | END OF HOLE | – | – | | | | | | | | | | |

PROJECT I-205 COLUMBIA RIVER BRIDGE

STATION & OFFSET OREGON 94+30, NO OFFSET

BORING NO. 41

GROUND ELEVATION 18.5 M.S.L.

SOIL TEST DATA

CH2M HILL

## TABLE 2 (Cont'd)

| SAMPLE NUMBER | DEPTH (FEET) | DESCRIPTION OF MATERIAL | CLASSIFICATION (AASHO) | "N" (BL/FT) | MOISTURE | | | GRADATION % PASSING | | | | $\gamma_d$ (LBS/FT$^3$) | TRIAXIAL SHEAR | CONSOLIDATION |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | P.L. (%) | w (%) | L.L. (%) | #4 | #10 | #40 | #200 | | | |
| SS-1 | 2.5-4 | BROWN SANDY SILT | A-4 | 11 | N/P | 21 | 34 | | | | | | | |
| SS-2 | 5-6.5 | TOP: BROWN SILTY SAND | A-4 | 10 | N/P | 21 | 33 | | | | | | | |
| – | – | BOTTOM: BROWN SANDY SILTY CLAY | A-7-5 | – | | | | | | | | | | |
| SS-3 | 10-11.5 | BROWN SANDY SILT | A-4 | 9 | N/P | 19 | 33 | | | | | | | |
| SS-4 | 15-16.5 | BROWN SANDY SILT | A-4 | 10 | N/P | 22 | – | | | | | | | |
| – | 18 | G.W.T. (8/30/73) | – | – | | | | | | | | | | |
| SS-5 | 20-21.5 | BROWN SILTY FINE SAND | A-4 | 4 | N/P | 31 | – | | | | | | | |
| SS-6 | 25-26.5 | BROWN SILTY FINE SAND | A-4 | 9 | N/P | 40 | – | | | | | | | |
| SS-7 | 30-31.5 | BROWN SILTY FINE SAND | A-3 | 16 | | | | | | | | | | |
| SS-8 | 35-36.5 | BROWN SILTY FINE SAND | A-3 | 18 | | | | | | | | | | |
| SS-9 | 40-41.5 | BROWN COARSE TO FINE SAND | A-3 | 24 | | | | | | | | | | |
| SS-10 | 45-46.5 | BROWN COARSE TO FINE SAND | A-3 | 18 | | | | | | | | | | |
| SS-11 | 50-51.5 | BROWN COARSE TO FINE SAND | A-3 | 22 | | | | | | | | | | |
| SS-12 | 55-56.5 | BROWN COARSE TO FINE SAND | A-3 | 24 | | | | | 100 | 57 | 7 | | | |
| SS-13 | 60-61.5 | BROWNISH GRAY FINE SAND | A-3 | 26 | | | | | | | | | | |
| SS-14 | 65-66.5 | BROWNISH GRAY FINE SAND | A-3 | 34 | | | | | | | | | | |
| SS-15 | 70-71.5 | BROWNISH GRAY FINE SAND | A-3 | 33 | | | | | | | | | | |
| SS-16 | 75-76.5 | BROWNISH GRAY FINE SAND | A-3 | 33 | | | | | | | | | | |
| SS-17 | 80-81.5 | BROWN FINE SAND | A-3 | 44 | | | | | | | | | | |
| SS-18 | 85-86.5 | BROWN FINE SAND | A-3 | 36 | | | | | | | | | | |
| SS-19 | 90-91.5 | BROWN FINE SAND | A-3 | 49 | | | | | 100 | 86 | 9 | | | |
| SS-20 | 95-96.5 | BROWNISH GRAY FINE SAND | A-3 | 43 | | | | | | | | | | |
| SS-21 | 100-101.5 | BROWNISH GRAY FINE SAND | A-3 | 39 | | | | | | | | | | |
| SS-22 | 105-106.5 | BROWNISH GRAY FINE SAND | A-3 | 53 | | | | | | | | | | |
| SS-23 | 110-111.5 | BROWNISH GRAY FINE SAND | A-3 | 52 | | | | | | | | | | |
| SS-24 | 115-116.5 | BROWNISH GRAY FINE SAND | A-3 | 51 | | | | | | | | | | |
| SS-25 | 120-121.5 | BROWNISH GRAY FINE SAND | A-3 | 60 | | | | | | | | | | |
| SS-26 | 128-128.8 | BROWNISH GRAY COARSE TO FINE SAND (Conglomerate) | A-3 | 51/4" | | | | 91 | 88 | 71 | 8 | | | |
| SS-27 | 140-140.9 | GRAY COARSE TO FINE SAND (CONGLOMERATE) | A-3 | 51/5" | | | | | | | | | | |
| – | 141 | END OF HOLE | – | – | | | | | | | | | | |

PROJECT I-205 COLUMBIA RIVER BRIDGE STATION & OFFSET OREGON 97+30, NO OFFSET
BORING NO. 42 GROUND ELEVATION 28.8 M.S.L.

## SOIL TEST DATA

CH2M HILL

## TABLE 2 (Cont'd)

| SAMPLE NUMBER | DEPTH (FEET) | DESCRIPTION OF MATERIAL | CLASSIFICATION (AASHO) | "N" (BL/FT) | MOISTURE | | | GRADATION % PASSING | | | | $\gamma_d$ (LBS/FT$^3$) | TRIAXIAL SHEAR | CONSOLIDATION |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | P.L. (%) | w (%) | L.L. (%) | #4 | #10 | #40 | #200 | | | |
| – | – | WATER DEPTH 4.0 (9-11-73) | – | – | | | | | | | | | | |
| – | 0 | MUDLINE | – | – | | | | | | | | | | |
| SS-1 | 5-6.5 | BROWNISH GRAY FINE SAND | A-3 | 8 | | | | | | | | | | |
| SS-2 | 10-11.5 | DARK BROWNISH GRAY COARSE TO FINE SAND | A-3 | 10 | | | | | | | | | | |
| SS-3 | 15-16.5 | DARK BROWNISH GRAY COARSE TO FINE SAND | A-3 | 11 | | | | | | | | | | |
| SS-4 | 20-21.5 | DARK BROWNISH GRAY COARSE TO FINE SAND | A-1-b | 21 | | | | | | | | | | |
| SS-5 | 25-26.5 | DARK BROWNISH GRAY COARSE TO FINE SAND | A-1-b | 48 | | | | | | | | | | |
| SS-6 | 30-31.5 | DARK BROWNISH GRAY COARSE TO FINE SAND | A-1-b | 15 | | | | | | | | | | |
| SS-6 | 35-36.5 | DARK BROWNISH GRAY COARSE TO FINE SAND | A-1-b | 15 | | | | 100 | 99 | 24 | 1 | | | |
| SS-8 | 40-41.5 | DARK BROWNISH GRAY FINE SAND | A-3 | 34 | | | | | | | | | | |
| SS-9 | 45-46.5 | DARK BROWNISH GRAY FINE SAND | A-3 | 45 | | | | | | | | | | |
| SS-10 | 50-51.5 | DARK BROWNISH GRAY FINE SAND | A-3 | 31 | | | | | | | | | | |
| SS-11 | 55-56.5 | DARK BROWNISH GRAY FINE SAND | A-3 | 35 | | | | | | | | | | |
| SS-12 | 60-61.5 | DARK BROWNISH GRAY FINE SAND | A-3 | 37 | | | | | | | | | | |
| SS-13 | 65-66.5 | DARK BROWNISH GRAY FINE SAND | A-3 | 32 | | | | | | | | | | |
| SS-14 | 70-71.5 | DARK BROWN SILTY SAND | A-3 | 18 | | | | 100 | 97 | 72 | 6 | | | |
| SS-15 | 75-76.5 | DARK GRAY FINE SAND | A-3 | 71 | | | | | | | | | | |
| SS-16 | 80-81 | DARK GRAY FINE SAND | A-3 | 50/6" | | | | | | | | | | |
| SS-17 | 85-86 | DARK GRAY FINE SAND | A-3 | 43/6" | | | | | | | | | | |
| SS-18 | 90-91.5 | GRAY FINE SAND | A-3 | – | | | | | | | | | | |
| SS-19 | 95-96.5 | GRAY FINE SAND | A-3 | 64 | | | | | | | | | | |
| SS-20 | 100-101.5 | GRAY FINE SAND | A-3 | 72 | | | | | | | | | | |
| SS-21 | 105-105.2 | DARK GRAY SANDY GRAVEL (CONGLOMERATE) | A-1 | 50/2" | | | | | | | | | | |
| SS-22 | 110-110.3 | DARK GRAY SANDY GRAVEL (CONGLOMERATE) | A-1 | 50/4" | | | | | | | | | | |
| – | 110.3 | END OF HOLE | – | – | | | | | | | | | | |

PROJECT I-205 COLUMBIA RIVER BRIDGE

BORING NO. 43

STATION & OFFSET OREGON 100+70, NO OFFSET

GROUND ELEVATION 1.9 M.S.L.

**SOIL TEST DATA**

CH2M HILL

## TABLE 2 (Cont'd)

| SAMPLE NUMBER | DEPTH (FEET) | DESCRIPTION OF MATERIAL | CLASSIFICATION (AASHO) | "N" (BL/FT) | MOISTURE | | | GRADATION % PASSING | | | | $\gamma_d$ (LBS/FT$^3$) | TRIAXIAL SHEAR | CONSOLIDATION |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | P.L. (%) | w (%) | L.L. (%) | #4 | #10 | #40 | #200 | | | |
| – | – | WATER DEPTH 1.4 (10-10-73) | – | – | | | | | | | | | | |
| – | 0 | MUDLINE | – | – | | | | | | | | | | |
| SS-1 | 5-6.5 | BROWN FINE SAND | A-3 | 5 | | | | | | | | | | |
| SS-2 | 10-11.5 | BROWN FINE SAND | A-3 | 7 | | | | | | | | | | |
| SS-3 | 15-16.5 | GRAYISH BROWN FINE SAND | A-3 | 12 | | | | | | | | | | |
| SS-4 | 20-21.5 | GRAYISH BROWN FINE SAND | A-3 | 22 | | | | | 100 | 84 | 9 | | | |
| SS-5 | 25-26.5' | GRAYISH BROWN COARSE TO FINE SAND | A-1-b | 17 | | | | | | | | | | |
| SS-6 | 30-31.5 | GRAYISH BROWN COARSE TO FINE SAND | A-1-b | 10 | | | | 100 | 92 | 31 | 3 | | | |
| SS-7 | 35-36.5 | BROWN SANDY SILT | A-4 | 7 | | | | | | | | | | |
| SS-8 | 40-41.5 | BROWN SILTY FINE SAND | A-4 | 11 | | | | | 100 | 94 | 42 | | | |
| SS-9 | 45-46.5 | BROWN FINE SAND | A-3 | 24 | | | | | | | | | | |
| SS-10 | 50-51.5 | BROWN FINE SAND | A-3 | 31 | | | | | | | | | | |
| SS-11 | 55-56.5 | GRAYISH BROWN FINE SAND | A-3 | 33 | | | | | | | | | | |
| SS-12 | 60-61.5 | GRAYISH BROWN FINE SAND | A-3 | 48 | | | | | | | | | | |
| SS-13 | 65-66.5 | GRAYISH BROWN FINE SAND | A-3 | 22 | | | | | | | | | | |
| SS-14 | 70-71.5 | GRAYISH BROWN FINE SAND | A-3 | 44 | | | | | | | | | | |
| SS-15 | 75-76.5 | GRAYISH BROWN FINE SAND | A-3 | 48 | | | | | 100 | 94 | 8 | | | |
| SS-16 | 80-81.5 | BROWNISH GRAY FINE SAND | A-3 | 49 | | | | | | | | | | |
| SS-17 | 85-86.5 | BROWNISH GRAY FINE SAND | A-3 | 46 | | | | | | | | | | |
| SS-18 | 90-91.5 | BROWNISH GRAY FINE SAND | A-3 | 37 | | | | | | | | | | |
| SS-19 | 95-96.5 | BROWNISH GRAY FINE SAND | A-3 | 81 | | | | | | | | | | |
| SS-20 | 100-101.5 | BROWNISH GRAY FINE SAND | A-3 | 60 | | | | | | | | | | |
| SS-21 | 105-106.5 | BROWNISH GRAY FINE SAND | A-3 | 27 | | | | | | | | | | |
| SS-22 | 110-111.5 | BROWN COARSE TO FINE SAND | A-3 | 32 | | | | 88 | 81 | 55 | 7 | | | |
| SS-23 | 115-116.5 | BROWN SANDY GRAVEL (CONGLOMERATE) | A-1 | 75 | | | | | | | | | | |
| SS-24 | 120-120.1 | NO RECOVERY | – | 50/2" | | | | | | | | | | |
| SS-25 | 130-130.1 | NO RECOVERY | – | 50/2" | | | | | | | | | | |
| SS-26 | 140-140 | NO RECOVERY | – | 50/½" | | | | | | | | | | |
| SS-27 | 150-150 | BLACK GRAVEL (CONGLOMERATE) | A-1 | 50/½" | | | | | | | | | | |
| SS-28 | 160-161.5 | BROWNISH GRAY SILTY CLAY (CLAYSTONE) | A-7-5 | 97 | | | | | | | | | | |

PROJECT I-205 COLUMBIA RIVER BRIDGE
STATION & OFFSET OREGON 103+95, NO OFFSET
BORING NO. 44
GROUND ELEVATION 3.5 M.S.L.

SOIL TEST DATA

CH2M HILL

## TABLE 2 (Cont'd)

| SAMPLE NUMBER | DEPTH (FEET) | DESCRIPTION OF MATERIAL | CLASSIFI-CATION (AASHO) | "N" (BL/FT) | MOISTURE |  |  | GRADATION % PASSING |  |  |  | $\gamma_d$ (LBS/FT$^3$) | TRIAXIAL SHEAR | CONSOLI-DATION |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  |  |  |  |  | P.L. (%) | w (%) | L.L. (%) | #4 | #10 | #40 | #200 |  |  |  |
| SS-29 | 170-171.2 | BROWNISH GRAY SILTY CLAY (CLAYSTONE) | A-7-5 | – | 48 | 52 | 67 |  |  |  |  |  |  |  |
| ST-1 | 180-180.3 | DARK GRAY SAND (SANDSTONE) | A-4 | – |  |  |  |  |  |  |  |  |  |  |
| SSL-1* | 192-192.5 | BLACK (SANDSTONE OR SILTSTONE) | A-4 | – |  |  |  |  |  |  |  |  |  |  |
| ST-2 | 200-200.8 | BROWNISH BLACK SAND (SANDSTONE) | A-4 | – |  |  |  |  |  |  |  |  |  |  |
| SSL-2 | 210-211.5 | GRAY SILTY CLAY (CLAYSTONE) | A-7-5 | 67 | 39 | 35 | 66 |  |  |  |  |  |  |  |
| SSL-3 | 220-221 | GRAY FINE SAND (SANDSTONE) | A-3 | 90/6" |  |  |  |  |  |  |  |  |  |  |
| – | 221 | END OF HOLE | – | – |  |  |  |  |  |  |  |  |  |  |

* SPLIT SPOON WITH AN INTERIOR METAL LINER

PROJECT I-205 COLUMBIA RIVER BRIDGE
STATION & OFFSET OREGON 103+95, NO OFFSET
BORING NO. 44
GROUND ELEVATION 3.5 M.S.L.

SOIL TEST DATA

CH2M HILL

## TABLE 2 (Cont'd)

| SAMPLE NUMBER | DEPTH (FEET) | DESCRIPTION OF MATERIAL | CLASSIFICATION (AASHO) | "N" (BL/FT) | MOISTURE |  |  | GRADATION % PASSING |  |  |  | $\gamma_d$ (LBS/FT$^3$) | TRIAXIAL SHEAR | CONSOLIDATION |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  |  |  |  |  | P.L. (%) | w (%) | L.L. (%) | #4 | #10 | #40 | #200 |  |  |  |
| – | – | WATER DEPTH 2.0 (10-5-73) | – | – |  |  |  |  |  |  |  |  |  |  |
| – | .0 | MUDLINE | – | – |  |  |  |  |  |  |  |  |  |  |
| SS-1 | 5-6.5 | DARK BROWNISH GRAY FINE SAND | A-3 | 30 |  |  |  | 98 | 95 | 84 | 5 |  |  |  |
| SS-2 | 10-11.5 | BROWNISH GRAY FINE SAND (SOME COARSE) | A-3 | 11 |  |  |  |  |  |  |  |  |  |  |
| SS-3 | 15-16.5 | BROWNISH GRAY COARSE TO FINE SAND | A-3 | 10 |  |  |  | 100 | 98 | 66 | 3 |  |  |  |
| SS-4 | 20-21.5 | BROWNISH GRAY COARSE TO FINE SAND | A-3 | 20 |  |  |  |  |  |  |  |  |  |  |
| SS-5 | 25-26.5 | BROWNISH GRAY COARSE TO FINE SAND | A-3 | 18 |  |  |  |  |  |  |  |  |  |  |
| SS-6 | 30-31.5 | DARK BROWN FINE SAND | A-3 | 17 |  |  |  |  |  |  |  |  |  |  |
| SS-7 | 35-36.5 | BROWN COARSE TO FINE SAND | A-1-b | 16 |  |  |  | 100 | 98 | 49 | 3 |  |  |  |
| SS-8 | 40-41.5 | GRAYISH BROWN FINE SAND (SOME COARSE) | A-3 | 33 |  |  |  |  |  |  |  |  |  |  |
| SS-9 | 45-46.5 | GRAYISH BROWN FINE SAND | A-3 | 29 |  |  |  |  |  |  |  |  |  |  |
| SS-10 | 50-51.6 | GRAYISH BROWN FINE SAND | A-3 | 22 |  |  |  |  |  |  |  |  |  |  |
| SS-11 | 55-56.5 | GRAYISH BROWN FINE SAND | A-3 | 36 |  |  |  |  |  |  |  |  |  |  |
| SS-12 | 60-61.5 | BROWNISH GRAY FINE SAND | A-3 | 33 |  |  |  |  |  |  |  |  |  |  |
| SS-13 | 65-66.5 | BROWNISH GRAY FINE SAND | A-3 | 62 |  |  |  |  |  |  |  |  |  |  |
| SS-14 | 70-71.5 | BROWNISH GRAY FINE SAND | A-3 | 52 |  |  |  |  |  |  |  |  |  |  |
| SS-15 | 75-76.5 | BROWNISH GRAY FINE SAND | A-3 | 49 |  |  |  |  |  |  |  |  |  |  |
| SS-16 | 80-81.5 | BROWNISH GRAY FINE SAND | A-3 | 42 |  |  |  |  |  |  |  |  |  |  |
| SS-17 | 85-86.5 | BROWNISH GRAY FINE SAND | A-3 | 61 |  |  |  |  |  |  |  |  |  |  |
| SS-18 | 90-91.5 | BROWNISH GRAY GRAVELLY FINE SAND | A-3 | 36 |  |  |  |  |  |  |  |  |  |  |
| SS-19 | 95-96.5 | BROWNISH GRAY FINE SAND | A-3 | 94 |  |  |  |  |  |  |  |  |  |  |
| SS-20 | 100-101.5 | BROWNISH GRAY FINE SAND | A-3 | 46 |  |  |  |  |  |  |  |  |  |  |
| SS-21 | 105-106.5 | BROWNISH GRAY FINE SAND | A-3 | 80 |  |  |  |  |  |  |  |  |  |  |
| SS-22 | 110-111.5 | GRAY VERY FINE SAND | A-3 | 64 |  |  |  |  |  |  |  |  |  |  |
| SS-23 | 115-115.1 | NO RECOVERY | – | 50/1" |  |  |  |  |  |  |  |  |  |  |
| SS-24 | 120-120 | NO RECOVERY | – | 50/½" |  |  |  |  |  |  |  |  |  |  |
| SS-25 | 126-126.2 | SAMPLE MISSING | – | 50/3" |  |  |  |  |  |  |  |  |  |  |
| – | 126.5 | END OF HOLE | – | – |  |  |  |  |  |  |  |  |  |  |

PROJECT I-205 COLUMBIA RIVER BRIDGE

BORING NO. 45

STATION & OFFSET OREGON 107+130, NO OFFSET

GROUND ELEVATION 3.2 MSL

SOIL TEST DATA

CH2M HILL

## TABLE 2 (Cont'd)

| SAMPLE NUMBER | DEPTH (FEET) | DESCRIPTION OF MATERIAL | CLASSIFI-CATION (AASHO) | "N" (BL/FT) | MOISTURE | | | GRADATION % PASSING | | | | $\gamma_d$ (LBS/FT$^3$) | TRIAXIAL SHEAR | CONSOLI-DATION |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | P.L. (%) | w (%) | L.L. (%) | #4 | #10 | #40 | #200 | | | |
| – | – | WATER DEPTH 3.5 (10-4-73) | – | – | | | | | | | | | | |
| – | 0 | MUDLINE | – | – | | | | | | | | | | |
| SS-1 | 5-6.5 | GRAY COARSE TO FINE SAND | A-3 | 5 | | | | 99 | 97 | 82 | 8 | | | |
| SS-2 | 10-11.5 | DARK GRAY FINE SAND | A-3 | 9 | | | | | 100 | 98 | 4 | | | |
| SS-3 | 15-16.5 | DARK GRAY FINE SAND | A-3 | 9 | | | | | | | | | | |
| SS-4 | 20-21.5 | DARK GRAY FINE SAND | A-3 | 10 | | | | | | | | | | |
| SS-5 | 25-26.5 | DARK GRAY FINE SAND | A-3 | 10 | | | | | | | | | | |
| SS-6 | 30-31.5 | DARK GRAY FINE SAND | A-3 | 18 | | | | | | | | | | |
| SS-7 | 35-36.5 | DARK GRAY FINE SAND | A-3 | 20 | | | | | | | | | | |
| SS-8 | 40-41.5 | DARK GRAY FINE SAND | A-3 | 24 | | | | | | | | | | |
| SS-9 | 45-46.5 | DARK GRAY FINE SAND | A-3 | 17 | | | | | | | | | | |
| SS-10 | 50-51.5 | DARK GRAY FINE SAND | A-3 | 51 | | | | | | | | | | |
| SS-11 | 55-56.5 | DARK GRAY FINE SAND | A-3 | 40 | | | | | | | | | | |
| SS-12 | 60-61.5 | DARK GRAY FINE SAND | A-3 | 50 | | | | 96 | 91 | 63 | 7 | | | |
| SS-13 | 65-66.5 | DARK GRAY FINE SAND | A-3 | 32 | | | | | | | | | | |
| SS-14 | 70-71.5 | DARK GRAY FINE SAND | A-3 | 34 | | | | | | | | | | |
| SS-15 | 75-76.5 | DARK GRAY FINE SAND | A-3 | 53 | | | | | | | | | | |
| SS-16 | 80-81.5 | DARK GRAY FINE SAND | A-3 | 32 | | | | | | | | | | |
| SS-17 | 85-86.5 | GRAYISH BROWN FINE SAND | A-3 | 50 | | | | | | | | | | |
| SS-18 | 90-91.5 | GRAYISH BROWN FINE SAND | A-3 | 36 | | | | | | | | | | |
| SS-19 | 95-96.5 | GRAYISH BROWN FINE SAND (SOME GRAVEL) | A-3 | 45 | | | | | | | | | | |
| SS-20 | 100-101.5 | GRAYISH BROWN FINE SAND (SOME GRAVEL) | A-3 | 77 | | | | | | | | | | |
| SS-21 | 105-106.5 | GRAYISH BROWN FINE SAND | A-3 | 87 | | | | | | | | | | |
| SS-22 | 110-111.5 | GRAYISH BROWN FINE SAND (SOME SILT) | A-3 | 73 | | | | 100 | 98 | 71 | 9 | | | |
| SS-23 | 115-115.2 | DARK GRAY GRAVELLY SAND (CONGLOMERATE) | A-1-b | 50/3 | | | | 75 | 70 | 45 | 4 | | | |
| SS-24 | 120-120.2 | DARK GRAY SANDY GRAVEL (CONGLOMERATE) | A-1 | 50/3 | | | | | | | | | | |
| SS-25 | 125-125.1 | NO RECOVERY | – | 50/1 | | | | | | | | | | |
| SS-26 | 127-127 | NO RECOVERY | – | 50/0 | | | | | | | | | | |
| – | 127 | END OF HOLE | – | – | | | | | | | | | | |

PROJECT I-205 COLUMBIA RIVER BRIDGE
STATION & OFFSET OREGON 109+75, 15' RT.
BORING NO. 46
GROUND ELEVATION 1.3 MSL

SOIL TEST DATA

CH2M HILL

## TABLE 2 (Cont'd)

| SAMPLE NUMBER | DEPTH (FEET) | DESCRIPTION OF MATERIAL | CLASSIFI-CATION (AASHO) | "N" (BL/FT) | MOISTURE P.L. (%) | MOISTURE w (%) | MOISTURE L.L. (%) | GRADATION % PASSING #4 | GRADATION % PASSING #10 | GRADATION % PASSING #40 | GRADATION % PASSING #200 | γd (LBS/FT³) | TRIAXIAL SHEAR | CONSOLI-DATION |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| – | – | WATER DEPTH 6.0 (9-13-73) | – | – | | | | | | | | | | |
| – | 0 | MUDLINE | – | – | | | | | | | | | | |
| SS-1 | 5-6.5 | BROWNISH GRAY FINE SAND | A-3 | 20 | | | | | | | | | | |
| SS-2 | 10-11.5 | BROWNISH GRAY FINE SAND | A-3 | 11 | | | | | 100 | 55 | 1 | | | |
| SS-3 | 15-16.5 | DARK GRAY PINE SAND | A-3 | 18 | | | | | | | | | | |
| SS-4 | 20-21.5 | DARK GRAY PINE SAND | A-3 | 18 | | | | | | | | | | |
| SS-5 | 25-26.5 | DARK GRAY PINE SAND | A-3 | 24 | | | | | | | | | | |
| SS-6 | 30-31.5 | BROWNISH GRAY COARSE TO FINE SAND | A-3 | 36 | | | | | | | | | | |
| SS-7 | 35-36.5 | BROWNISH GRAY FINE SAND | A-3 | 72 | | | | 96 | 91 | 59 | 1 | | | |
| SS-8 | 45-46.5 | BROWNISH GRAY FINE SAND | A-3 | 40 | | | | | | | | | | |
| SS-9 | 50-51.5 | BROWNISH GRAY FINE SAND | A-3 | 26 | | | | | | | | | | |
| SS-10 | 55-56.5 | BROWNISH GRAY FINE SAND | A-3 | 50/3" | | | | | | | | | | |
| SS-11 | 60-61 | BROWNISH GRAY FINE SAND | A-3 | 63 | | | | | | | | | | |
| SS-12 | 65-66.5 | BROWNISH GRAY FINE SAND | A-3 | 38 | | | | | | | | | | |
| SS-13 | 70-71.5 | BROWNISH GRAY FINE SAND | A-3 | 43 | | | | | | | | | | |
| SS-14 | 75-76.5 | BROWNISH GRAY COARSE TO FINE SAND | A-3 | 53 | | | | 100 | 95 | 61 | 7 | | | |
| SS-15 | 80-81.5 | BROWNISH GRAY COARSE TO FINE SAND | A-3 | 69 | | | | | | | | | | |
| SS-16 | 85-86.5 | GRAYISH BROWN FINE SAND | A-3 | 78 | | | | | | | | | | |
| SS-17 | 90-91.5 | GRAYISH BROWN FINE SAND | A-3 | 79 | | | | | | | | | | |
| SS-18 | 95-96.5 | BROWNISH GRAY FINE SAND | A-3 | 106/11" | | | | | | | | | | |
| SS-19 | 100-101.5 | BROWNISH GRAY FINE SAND | A-3 | 84 | | | | | | | | | | |
| SS-20 | 105-106.5 | BROWNISH GRAY FINE SAND | A-3 | 66 | | | | | | | | | | |
| SS-21 | 110-111.5 | BROWNISH GRAY FINE SAND | A-3 | 104 | | | | | | | | | | |
| SS-22 | 115-115.4 | BROWNISH GRAY FINE SAND | A-3 | 5 1/5" | | | | 83 | 80 | 77 | 4 | | | |
| SS-23 | 130-131.2 | NO RECOVERY | – | 50/1" | | | | | | | | | | |
| SS-24 | 141-141.2 | NO RECOVERY | – | 110/2.5" | | | | | | | | | | |
| ST-1 | 175-177.5 | DARK GRAY SILTY CLAY (CLAYSTONE) | A-7-5 | – | 35 | 37 | 60 | | | | | | | |
| SSL*-1 | 178-179 | DARK GRAY SILTY CLAY (CLAYSTONE) | A-7-5 | 85/6" | | | | | | | | 72, 99 | | See Fig. 15 |
| ST-2 | 182-184 | GRAY SILTY CLAY (CLAYSTONE) | A-7-5 | – | 34 | 46 | 58 | | | | | | | |
| SS-25 | 193-193.3 | GRAY SILTY CLAY (CLAYSTONE) | A-7-5 | 61/3.5 | 30 | 26 | 46 | | | | | | | |

PROJECT I-205 COLUMBIA RIVER BRIDGE
STATION & OFFSET OREGON 113+05, 5 LT.
BORING NO. 47
GROUND ELEVATION -0.1 MSL

*SSL IS A SPLIT SPOON WITH AN INTERIOR METAL LINER

**SOIL TEST DATA**

CH2M HILL

## TABLE 2 (Cont'd)

| SAMPLE NUMBER | DEPTH (FEET) | DESCRIPTION OF MATERIAL | CLASSIFICATION (AASHO) | "N" (BL/FT) | MOISTURE | | | GRADATION % PASSING | | | | $\gamma_d$ (LBS/FT$^3$) | TRIAXIAL SHEAR | CONSOLIDATION |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | P.L. (%) | ω (%) | L.L. (%) | #4 | #10 | #40 | #200 | | | |
| ST-3 | 203-203.5 | BROWN SANDY CLAYEY SILT (SILT STONE) | A-4 | 41/5" | 32 | 29 | 36 | | | | | | | |
| – | 203.5 | END OF HOLE | – | – | | | | | | | | | | |

PROJECT I-205 COLUMBIA RIVER BRIDGE

STATION & OFFSET OREGON 113+05, 5 LT

BORING NO. 47

GROUND ELEVATION -0.1 M.S.L.

SOIL TEST DATA

CH2M HILL

## TABLE 2 (Cont'd)

| SAMPLE NUMBER | DEPTH (FEET) | DESCRIPTION OF MATERIAL | CLASSIFI-CATION (AASHO) | "N" (BL/FT) | MOISTURE | | | GRADATION % PASSING | | | | $\gamma_d$ (LBS/FT$^3$) | TRIAXIAL SHEAR | CONSOLI-DATION |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | P.L. (%) | w (%) | L.L. (%) | #4 | #10 | #40 | #200 | | | |
| – | – | WATER DEPTH 13.0 (9-28-73) | – | – | | | | | | | | | | |
| – | 0 | MUDLINE | – | – | | | | | | | | | | |
| SS-1 | 5-6.5 | GRAYISH BROWN COARSE FINE SAND | A-3 | – | | | | 98 | 91 | 51 | 5 | | | |
| SS-2 | 10-11.5 | GRAYISH BROWN COARSE FINE SAND | A-3 | 10 | | | | | | | | | | |
| SS-3 | 15-16.5 | GRAYISH BROWN COARSE FINE SAND | A-1-b | 14 | | | | 98 | 93 | 49 | 3 | | | |
| SS-4 | 20-21.5 | GRAYISH BROWN COARSE FINE SAND | A-3 | 11 | | | | | | | | | | |
| SS-5 | 25-26.5 | DARK GRAY FINE SAND | A-3 | 19 | | | | | | | | | | |
| SS-6 | 31-32.5 | DARK GRAY FINE SAND | A-3 | 47 | | | | | | | | | | |
| SS-7 | 35-36.5 | DARK GRAY FINE SAND | A-3 | 28 | | | | | | | | | | |
| SS-8 | 40-41.5 | DARK GRAY FINE SAND | A-3 | 34 | | | | | | | | | | |
| SS-9 | 45-46.5 | DARK GRAY FINE SAND | A-3 | 33 | | | | | | | | | | |
| SS-10 | 50-51.5 | DARK GRAY FINE SAND | A-3 | 58 | | | | | | | | | | |
| SS-11 | 55-56.5 | DARK GRAY FINE SAND | A-3 | 42 | | | | | | | | | | |
| SS-12 | 60-61.5 | DARK GRAY FINE SAND | A-3 | 84 | | | | | | | | | | |
| SS-13 | 65-66.5 | DARK GRAY FINE SAND | A-3 | 91 | | | | | | | | | | |
| SS-14 | 70-71.5 | DARK GRAY FINE SAND | A-3 | 43 | | | | | | | | | | |
| SS-15 | 75-76.5 | DARK GRAY FINE SAND | A-3 | 46 | | | | | | | | | | |
| SS-16 | 80-81.5 | DARK GRAY FINE SAND | A-3 | 81 | | | | | | | | | | |
| SS-17 | 85-86.5 | DARK GRAY FINE SAND | A-3 | 77 | | | | | | | | | | |
| SS-18 | 90-91.5 | DARK GRAY FINE SAND | A-3 | 68 | | | | 100 | 99 | 90 | 8 | | | |
| SS-19 | 95-96.5 | DARK GRAY FINE SAND | A-3 | 61 | | | | | | | | | | |
| SS 20 | 100-101.5 | DARK GRAY FINE SAND | A-3 | 71 | | | | | | | | | | |
| SS-21 | 105-106.5 | DARK GRAY FINE SAND | A-3 | 79 | | | | | | | | | | |
| SS-22 | 110-111.5 | DARK GRAY FINE SAND | A-3 | 67 | | | | | | | | | | |
| SS-23 | 115-116.5 | DARK GRAY FINE SAND | A-3 | 75 | | | | | | | | | | |
| SS-24 | 123-123 | NO RECOVERY | – | 50/½" | | | | | | | | | | |
| SS-25 | 128-128.1 | NO RECOVERY | – | 80/1" | | | | | | | | | | |
| SS-26 | 133-133.5 | BROWN SANDY GRAVEL (CONGLOMERATE) | A-1 | 80/6" | | | | | | | | | | |
| – | 133.5 | END OF HOLE | – | – | | | | | | | | | | |

PROJECT I-205 COLUMBIA RIVER BRIDGE

BORING NO. 48

STATION & OFFSET OREGON 116+05, NO OFFSET

GROUND ELEVATION -8.6 M.S.L.

**SOIL TEST DATA**

CH2M HILL

## TABLE 2 (Cont'd)

| SAMPLE NUMBER | DEPTH (FEET) | DESCRIPTION OF MATERIAL | CLASSIFICATION (AASHO) | "N" (BL/FT) | MOISTURE | | | GRADATION % PASSING | | | | $\gamma_d$ (LBS/FT$^3$) | TRIAXIAL SHEAR | CONSOLIDATION |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | P.L. (%) | w (%) | L.L. (%) | #4 | #10 | #40 | #200 | | | |
| – | – | WATER DEPTH 11.9 (9-13-73) | – | – | | | | | | | | | | |
| – | 0 | MUDLINE | – | – | | | | | | | | | | |
| SS-1 | 6-7.5 | GRAY CLAYEY SILT | A-7-5 | 11 | 33 | 43 | 48 | | | | | | | |
| SS-2 | 10-11.5 | BROWNISH GRAY SLIGHTLY SILTY FINE SAND | A-3 | 16 | | | | | | | | | | |
| SS-3 | 15-16.5 | BROWNISH GRAY FINE SAND | A-3 | 15 | | | | | | | | | | |
| SS-4 | 20-21.5 | BROWNISH GRAY FINE SAND | A-3 | 14 | | | | | | | | | | |
| SS-5 | 25-26.5 | DARK BROWN FINE SANDY SILT | A-4 | 10 | N/P | 49 | | | 100 | 98 | 37 | | | |
| SS-6 | 30-31.5 | BROWNISH GRAY FINE SAND | A-3 | 19 | | | | | | | | | | |
| SS-7 | 35-36.5 | BROWNISH GRAY FINE SAND | A-3 | 21 | | | | | | | | | | |
| SS-8 | 40-41.5 | BROWNISH GRAY FINE SAND | A-3 | 17 | | | | | | | | | | |
| SS-9 | 45-46.5 | BROWNISH GRAY FINE SAND | A-3 | 24 | | | | | | | | | | |
| SS-10 | 50-51.5 | BROWNISH GRAY FINE SAND | A-3 | 18 | | | | | | | | | | |
| SS-11 | 55-56.5 | BROWNISH GRAY SILTY COARSE TO FINE SAND | A-3 | 32 | | | | | | | | | | |
| SS-12 | 60-61.5 | DARK GRAY FINE SAND | A-3 | 26 | | | | | | | | | | |
| SS-13 | 65-66.5 | DARK GRAY FINE SAND | A-3 | 42 | | | | | | | | | | |
| SS-14 | 70-71.5 | BROWNISH GRAY FINE SAND | A-3 | 36 | | | | 100 | 99 | 87 | 6 | | | |
| SS-15 | 75-76.5 | BROWNISH GRAY FINE SAND | A-3 | 29 | | | | | | | | | | |
| SS-16 | 80-81.5 | BROWNISH GRAY FINE SAND | A-3 | 25 | | | | | | | | | | |
| SS-17 | 85-86.5 | BROWNISH GRAY FINE SAND | A-3 | 35 | | | | | | | | | | |
| SS-18 | 90-91.5 | BROWNISH GRAY FINE SAND | A-3 | 44 | | | | | | | | | | |
| SS-19 | 95-96.5 | BROWNISH GRAY FINE SAND | A-3 | 40 | | | | | | | | | | |
| SS-20 | 100-101.5 | BROWNISH GRAY FINE SAND | A-3 | 48 | | | | | | | | | | |
| SS-21 | 105-106.5 | BROWNISH GRAY FINE SAND | A-3 | 15 | | | | 99 | 97 | 82 | 8 | | | |
| SS-22 | 110-111.5 | BROWNISH GRAY FINE SAND | A-3 | 49 | | | | 99 | 96 | 78 | 7 | | | |
| SS-23 | 115-116.5 | BROWNISH GRAY FINE SAND | A-3 | 50 | | | | | | | | | | |
| SS-24 | 120-121.5 | BROWNISH GRAY FINE SAND | A-3 | 79 | | | | | | | | | | |
| SS-25 | 130-131.5 | BROWNISH GRAY FINE SAND | A-3 | 60 | | | | | | | | | | |
| SS-26 | 140-141.5 | DARK GRAY SANDY GRAVEL (CONGLOMERATE) | A-1 | 29 | | | | | | | | | | |
| SS-27 | 142-142.2 | DARK GRAY SANDY GRAVEL (CONGLOMERATE) | A-1 | 100/3" | | | | | | | | | | |
| – | 142.2 | END OF HOLE | – | – | | | | | | | | | | |

PROJECT I-205 COLUMBIA RIVER BRIDGE STATION & OFFSET OREGON 119+65, 30 LT

BORING NO. 49 GROUND ELEVATION -6 M.S.L.

SOIL TEST DATA

CH2M HILL

## TABLE 2 (Cont'd)

| SAMPLE NUMBER | DEPTH (FEET) | DESCRIPTION OF MATERIAL | CLASSIFICATION (AASHO) | "N" (BL/FT) | MOISTURE | | | GRADATION % PASSING | | | | $\gamma_d$ (LBS/FT$^3$) | TRIAXIAL SHEAR | CONSOLIDATION |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | P.L. (%) | ω (%) | L.L. (%) | #4 | #10 | #40 | #200 | | | |
| – | – | WATER DEPTH 0.6 (9-4-73) | – | – | | | | | | | | | | |
| – | 0 | MUDLINE | – | – | | | | | | | | | | |
| SS-1 | 5-6.5 | BROWN SANDY SILTY CLAY | A-7-5 | 4 | 40 | 56 | 59 | | | | | | | |
| SS-2 | 10-11.5 | BROWN SANDY SILTY CLAY | A-7-5 | 4 | 30 | 45 | 44 | | | | | | | |
| SS-3 | 15-16.5 | TOP: BROWNISH GRAY SANDY SILT | A-4 | 3 | N/P | 39 | – | | | | | | | |
| – | – | BOTTOM: DARK GRAY FINE SANDY SILT | A-4 | – | 31 | 41 | 39 | | | | | | | |
| SS-4 | 20-21.5 | GRAYISH BROWN SILTY FINE SAND | A-3 | 23 | | | | | | | | | | |
| SS-5 | 25-26.5 | GRAYISH BROWN SILTY FINE SAND | A-3 | 15 | | | | | | | | | | |
| SS-6 | 30-31.5 | GRAYISH BROWN SILTY FINE SAND | A-3 | 19 | | | | | | | | | | |
| SS-7 | 35-36.5 | GRAYISH BROWN SILTY FINE SAND | A-3 | 19 | | | | | | | | | | |
| SS-8 | 40-41.5 | BROWNISH GRAY FINE SAND | A-3 | 38 | | | | | | | | | | |
| SS-9 | 45-46.5 | BROWNISH GRAY FINE SAND | A-3 | 24 | | | | | | | | | | |
| SS-10 | 50-51.5 | BROWNISH GRAY FINE SAND | A-3 | 25 | | | | | | | | | | |
| SS-11 | 55-56.5 | BROWNISH GRAY COARSE TO FINE SAND | A-3 | 23 | | | | 99 | 95 | 60 | 6 | | | |
| SS-12 | 60-61.5 | BROWNISH GRAY COARSE TO FINE SAND | A-3 | 34 | | | | | | | | | | |
| SS-13 | 65-66.5 | DARK GRAY FINE SAND | A-3 | 28 | | | | | | | | | | |
| SS-14 | 70-71.5 | BROWNISH GRAY FINE SAND | A-3 | 38 | | | | | | | | | | |
| SS-15 | 75-76.5 | BROWNISH GRAY FINE SAND | A-3 | 34 | | | | | | | | | | |
| SS-16 | 80-81.5 | BROWNISH GRAY FINE SAND | A-3 | 33 | | | | | | | | | | |
| SS-17 | 85-86.5 | BROWNISH GRAY FINE SAND | A-3 | 46 | | | | | | | | | | |
| SS-18 | 90-91.5 | BROWNISH GRAY FINE SAND | A-3 | 29 | | | | | | | | | | |
| SS-19 | 95-96.5 | BROWNISH GRAY FINE SAND | A-3 | 44 | | | | | 100 | 99 | 2 | | | |
| SS-20 | 100-101.5 | BROWNISH GRAY FINE SAND | A-3 | 53 | | | | | | | | | | |
| SS-21 | 105-106.5 | BROWNISH GRAY FINE SAND | A-3 | 67 | | | | | | | | | | |
| SS-22 | 110-111.5 | BROWNISH GRAY FINE SAND | A-3 | 48 | | | | | | | | | | |
| SS-23 | 115-116.5 | BROWNISH GRAY FINE SAND | A-3 | 59 | | | | | | | | | | |
| SS-24 | 120-121.5 | BROWNISH GRAY FINE SAND | A-3 | 71 | | | | | | | | | | |
| SS-25 | 130-131.5 | BROWNISH GRAY FINE SAND | A-3 | 55 | | | | | | | | | | |
| SS-26 | 140-141.5 | BROWNISH GRAY FINE SAND | A-3 | 81 | | | | | | | | | | |
| SS-17 | 150-151.5 | BROWNISH GRAY FINE SAND | A-3 | 63 | | | | | | | | | | |

PROJECT I-205 COLUMBIA RIVER BRIDGE
STATION & OFFSET OREGON 122+20, 160 RT.
BORING NO. 50
GROUND ELEVATION 4.8 M.S.L.

SOIL TEST DATA

CH2M HILL

## TABLE 2 (Cont'd)

| SAMPLE NUMBER | DEPTH (FEET) | DESCRIPTION OF MATERIAL | CLASSIFI-CATION (AASHO) | "N" (BL/FT) | MOISTURE |  |  | GRADATION % PASSING |  |  |  | $\gamma_d$ (LBS/FT$^3$) | TRIAXIAL SHEAR | CONSOLI-DATION |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  |  |  |  |  | P.L. (%) | w (%) | L.L. (%) | #4 | #10 | #40 | #200 |  |  |  |
| SS-28 | 160-161.5 | DARK GRAY COARSE TO FINE SAND | A-1-b | 51 |  |  |  | 100 | 98 | 38 | 7 |  |  |  |
| SS-29 | 170-171.5 | DARK GRAY SILTY FINE SAND (CONGLOMERATE) | A-3 | 157 |  |  |  |  |  |  |  |  |  |  |
| SS-30 | 185-186.5 | DARK GRAY SILTY CLAY (CLAYSTONE) | A-7-5 | 46 | 43 | 46 | 65 |  |  |  |  |  |  |  |
| – | 189 | END OF HOLE | – | – |  |  |  |  |  |  |  |  |  |  |

PROJECT I-205 COLUMBIA RIVER BRIDGE
BORING NO. 50
STATION & OFFSET OREGON 122+20, 160 RT.
GROUND ELEVATION 4.8 M.S.L.

SOIL TEST DATA

CH2M HILL

## TABLE 2 (Cont'd)

| SAMPLE NUMBER | DEPTH (FEET) | DESCRIPTION OF MATERIAL | CLASSIFICATION (AASHO) | "N" (BL/FT) | MOISTURE | | | GRADATION % PASSING | | | | $\gamma_d$ (LBS/FT$^3$) | TRIAXIAL SHEAR | CONSOLIDATION |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | P.L. (%) | w (%) | L.L. (%) | #4 | #10 | #40 | #200 | | | |
| – | – | WATER DEPTH 2.0 (9-25-73) | – | – | | | | | | | | | | |
| – | 0 | MUDLINE | – | – | | | | | | | | | | |
| SS-1 | 5-6.5 | DARK BROWNISH GRAY SANDY SILT | A-5 | 5 | 32 | 41 | 42 | | | | | | | |
| SS-2 | 10-11.5 | DARK BROWNISH GRAY SANDY SILT | A-4 | 8 | N/P | 37 | – | | | | | | | |
| SS-3 | 15-16.5 | TOP: BROWNISH GRAY FINE SAND | A-2-4 | 17 | | | | | | 100 | 11 | | | |
| – | – | BOTTOM: BROWN SANDY SILT | A-2 | – | | | | | | | | | | |
| SS-4 | 20-21.5 | DARK GRAYISH BROWN FINE SAND | A-3 | 17 | | | | | | | | | | |
| SS-5 | 25-26.5 | DARK GRAYISH BROWN FINE SAND | A-3 | 16 | | | | | | | | | | |
| SS-6 | 30-31.5 | DARK GRAYISH BROWN FINE SAND | A-3 | 15 | | | | | | | | | | |
| SS-7 | 35-36.5 | DARK GRAYISH BROWN FINE SAND | A-3 | 11 | N/P | 39 | – | | | | | | | |
| SS-8 | 40-41.5 | DARK GRAYISH BROWN FINE SAND | A-3 | 23 | | | | | | | | | | |
| SS-9 | 45-46.5 | DARK GRAY FINE SAND | A-3 | 21 | | | | | | | | | | |
| SS-10 | 50-51.5 | DARK GRAY FINE SAND | A-3 | 20 | | | | | | | | | | |
| SS-11 | 55-56.5 | DARK GRAY FINE SAND | A-3 | 28 | | | | | | | | | | |
| SS-12 | 60-61.5 | DARK GRAY FINE SAND | A-3 | 43 | | | | | | | | | | |
| SS-13 | 65-66.5 | DARK GRAY FINE SAND | A-3 | 35 | | | | | | | | | | |
| SS-14 | 70-71.5 | GRAYISH BROWN FINE SAND | A-3 | 36 | | | | | | | | | | |
| SS-15 | 75-76.5 | GRAYISH BROWN FINE SAND | A-3 | 33 | | | | | | | | | | |
| SS-16 | 80-81.5 | GRAYISH BROWN FINE SAND | A-3 | 59 | | | | | | | | | | |
| SS-17 | 85-86.5 | GRAYISH BROWN FINE SAND | A-3 | 41 | | | | | | | | | | |
| SS-18 | 90-91.5 | GRAYISH BROWN FINE SAND | A-3 | 24 | | | | | | | | | | |
| SS-19 | 95-96.5 | GRAYISH BROWN FINE SAND | A-3 | 38 | | | | | | | | | | |
| SS-20 | 100-101.5 | GRAYISH BROWN FINE SAND | A-3 | 61 | | | | | | | | | | |
| SS-21 | 105-106.5 | GRAYISH BROWN FINE SAND | A-3 | 48 | | | | | 100 | 90 | 9 | | | |
| SS-22 | 110-111.5 | GRAYISH BROWN FINE SAND | A-3 | 39 | | | | | | | | | | |
| SS-23 | 115-116.5 | GRAYISH BROWN FINE SAND | A-3 | 49 | | | | | | | | | | |
| SS-24 | 120-121.5 | GRAYISH BROWN FINE SAND | A-3 | 61 | | | | | | | | | | |
| SS-25 | 130-131.5 | GRAYISH BROWN FINE SAND | A-3 | 97 | | | | | | | | | | |
| SS-26 | 140-141.5 | GRAYISH BROWN FINE SAND | A-3 | 63 | | | | | | | | | | |
| SS-27 | 150-151.5 | GRAYISH BROWN FINE SAND | A-3 | 74 | | | | | | | | | | |

PROJECT I-205 COLUMBIA RIVER BRIDGE
STATION & OFFSET OREGON 122+20, 60 LT.
BORING NO. 51
GROUND ELEVATION 2.9 M.S.L.

**SOIL TEST DATA**

CH2M HILL

## TABLE 2 (Cont'd)

| SAMPLE NUMBER | DEPTH (FEET) | DESCRIPTION OF MATERIAL | CLASSIFICATION (AASHO) | "N" (BL/FT) | MOISTURE | | | GRADATION % PASSING | | | | γd (LBS/FT³) | TRIAXIAL SHEAR | CONSOLIDATION |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | P.L. (%) | w (%) | L.L. (%) | #4 | #10 | #40 | #200 | | | |
| SS-28 | 160-161.5 | GRAYISH BLACK SILTY COARSE TO FINE SAND | A-3 | 36 | | | | 100 | 88 | 35 | 5 | | | |
| SS-29 | 170-171.5 | GRAYISH BLACK SILTY COARSE TO FINE SAND | A-3 | 96 | | | | | | | | | | |
| SS-30 | 180-181.5 | GRAYISH BROWN FINE SAND | A-3 | 89 | | | | | | | | | | |
| SS-31 | 185-185.2 | DARK GRAY COARSE TO FINE SAND (CONGLOMERATE) | A-1 | 50/3" | | | | 70 | 62 | 35 | 5 | | | |
| SS-32 | 190-191.5 | TOP: GRAYISH BROWN FINE SAND (CONGLOMERATE) | A-3 | 116 | | | | | | | | | | |
| – | – | BOTTOM: GRAY SANDY GRAVEL (CONGLOMERATE) | A-1-a | – | | | | | | | | | | |
| SSL-1* | 195-196.5 | GRAY SILTY CLAY (CLAYSTONE) | A-7-5 | – | 36 | 26 | 83 | | | | | 102 | | See Fig. 17 |
| ST-1 | 200-202 | GRAYISH BLACK SAND SILT (SILTSTONE) | A-2 | – | | | | | | | | | | |
| SSL-2 | 205-205.8 | BLACK SANDY SILTY (SILTSTONE) | A-4 | 57/3" | N/P | 43 | | | | | | | | |
| SSL-3 | 215-216.5 | GRAY SILTY CLAY (CLAYSTONE) | A-7-5 | 98 | 31 | 25 | 47 | | | | | | | |
| ST-2 | 225-225.5 | GRAY FINE SAND | A-3 | – | | | | | | | | | | |
| SSL-4 | 235-235.5 | GRAY SILTY CLAY (CLAYSTONE) | A-7-6 | 50/1" | 28 | 28 | 42 | | | | | | | |
| SSL-5 | 245-246.2 | GRAY SILTY CLAY (CLAYSTONE) | A-7-6 | 98/9" | | | | | | | | | | |
| – | 246 | END OF HOLE | | | | | | | | | | | | |

*SSL IS A SPLIT SPOON SAMPLER WITH AN INTERIOR METAL LINER

PROJECT I-205 COLUMBIA RIVER BRIDGE
STATION & OFFSET OREGON 122+20, 60 LT.
BORING NO. 51
GROUND ELEVATION 2.9 M.S.L.

SOIL TEST DATA

CH2M HILL

## TABLE 2 (Cont'd)

| SAMPLE NUMBER | DEPTH (FEET) | DESCRIPTION OF MATERIAL | CLASSIFI-CATION (AASHO) | "N" (BL/FT) | MOISTURE | | | GRADATION % PASSING | | | | $\gamma_d$ (LBS/FT$^3$) | TRIAXIAL SHEAR | CONSOLI-DATION |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | P.L. (%) | w (%) | L.L. (%) | #4 | #10 | #40 | #200 | | | |
| SS-1 | 2.5-4 | GREEN SANDY CLAYEY SILT | A-4 | 5 | 29 | 33 | 38 | | | | | | | |
| ST-1 | 5-6.2 | GREEN SANDY SILTY CLAY | A-7-5 | – | 30 | 39 | 43 | | | | | | | |
| SS-2 | 7-8.5 | GREEN SANDY SILTY CLAY | A-7-5 | 2 | 30 | 42 | 42 | | | | | | | |
| SS-3 | 10-11.5 | GREENISH BROWN SANDY SILT | A-4 | 1 | 28 | 47 | 36 | | | | | | | |
| SS-4 | 15-16.5 | GRAY SLIGHTLY SANDY CLAY | A-7-5 | 2 | 50 | 75 | 79 | | | | | | | |
| – | 16.5 | G.W.T. (8/20/73) | – | – | | | | | | | | | | |
| ST-2 | 20-22 | GREENISH GRAY SANDY SILTY CLAY | A-7-5 | – | 37 | 49 | 48 | | | | | 70, 74 | See Fig.25 | See Fig |
| SS-5 | 22-23.5 | SAMPLE MISSING | – | 3 | | | | | | | | | | |
| SS-6 | 25-26.5 | NO RECOVERY | – | 2 | | | | | | | | | | |
| ST-3 | 30-32 | GREENISH GRAY SANDY SILT | A-4 | – | 31 | 33 | 39 | | | | | | | |
| SS-7 | 32-33.5 | GREENISH GRAY SANDY SILT | A-4 | 3 | | | | | | | | | | |
| SS-8 | 35-36.5 | GREENISH BROWN SILTY SAND | A-2 | 24 | | | | | | | | | | |
| SS-9 | 40-41.5 | GREENISH BROWN SILTY SAND | A-2 | 23 | | | | | | | | | | |
| SS-10 | 45-46.5 | BROWNISH GRAY FINE SAND | A-3 | 18 | | | | | 100 | 98 | 9 | | | |
| SS-11 | 50-51.5 | BROWNISH GRAY FINE SAND | A-3 | 25 | | | | | | | | | | |
| SS-12 | 55-56.5 | BROWNISH GRAY FINE SAND | A-3 | 25 | | | | | | | | | | |
| SS-13 | 60-61.5 | BROWNISH GRAY FINE SAND | A-3 | 34 | | | | | | | | | | |
| SS-14 | 65-66.5 | BROWNISH GRAY FINE SAND | A-3 | 43 | | | | | | | | | | |
| SS-15 | 70-71.5 | BROWNISH GRAY FINE SAND | A-3 | 38 | | | | | | | | | | |
| SS-16 | 75-76.5 | BROWNISH GRAY FINE SAND | A-3 | 38 | | | | | | | | | | |
| SS-17 | 80-81.5 | BROWNISH GRAY FINE SAND | A-3 | 41 | | | | | | | | | | |
| SS-18 | 85-86.5 | BROWNISH GRAY FINE SAND | A-3 | 28 | | | | | | | | | | |
| SS-19 | 90-91.5 | BROWNISH GRAY FINE SAND | A-3 | 34 | | | | 100 | 93 | 73 | 9 | | | |
| SS-20 | 95-96.5 | BROWNISH GRAY FINE SAND | A-3 | 44 | | | | | | | | | | |
| SS-21 | 100-101.5 | BROWNISH GRAY FINE SAND | A-3 | 43 | | | | | | | | | | |
| SS-22 | 105-106.5 | BROWNISH GRAY FINE SAND | A-3 | 40 | | | | | | | | | | |
| SS-23 | 110-111.5 | BROWNISH GRAY FINE SAND | A-3 | 15 | | | | | | | | | | |
| SS-24 | 115-116.5 | GRAY COARSE TO FINE SAND | A-1 | 52 | | | | | | | | | | |
| SS-25 | 120-121.5 | GRAY COARSE TO FINE SAND | A-1 | 49 | | | | | | | | | | |
| SS-26 | 130-131.5 | GRAYISH BROWN FINE SAND | A-3 | 41 | | | | | | | | | | |

PROJECT I-205 COLUMBIA RIVER BRIDGE
STATION & OFFSET OREGON 125+20, 335 RT.
BORING NO. 52
GROUND ELEVATION 24 M.S.L.

SOIL TEST DATA

CH2M HILL

## TABLE 2 (Cont'd)

| SAMPLE NUMBER | DEPTH (FEET) | DESCRIPTION OF MATERIAL | CLASSIFICATION (AASHO) | "N" (BL/FT) | MOISTURE |  |  | GRADATION % PASSING |  |  |  | γd (LBS/FT³) | TRIAXIAL SHEAR | CONSOLIDATION |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  |  |  |  |  | P.L. (%) | ω (%) | L.L. (%) | #4 | #10 | #40 | #200 |  |  |  |
| SS-27 | 140-141.5 | GRAY COARSE TO FINE SAND | A-1 | 74 |  |  |  |  |  |  |  |  |  |  |
| SS-28 | 143-144.5 | GRAY COARSE TO FINE SAND | A-1 | 56 |  |  |  |  |  |  |  |  |  |  |
| SS-29 | 150-151.5 | GRAY COARSE TO FINE SAND | A-1 | 73 |  |  |  |  |  |  |  |  |  |  |
| SS-30 | 160-161 | GRAY COARSE TO FINE SAND | A-1 | 80 |  |  |  |  |  |  |  |  |  |  |
| SS-31 | 170-171.5 | GRAY COARSE TO FINE SAND | A-1 | 82 |  |  |  |  |  |  |  |  |  |  |
| SS-32 | 180-181.5 | GRAY COARSE TO FINE SAND | A-1 | 57 |  |  |  |  |  |  |  |  |  |  |
| SS-33 | 190-191.5 | GRAY COARSE TO FINE SAND | A-1 | 58 |  |  |  |  |  |  |  |  |  |  |
| SS-34 | 200-201.5 | GRAY COARSE TO FINE SAND | A-1 | 63 |  |  |  |  |  |  |  |  |  |  |
| SS-35 | 210-210.3 | GRAY GRAVELLY SILTY SAND (CONGLOMERATE) | A-2-4 | 60/4" |  |  |  |  |  |  |  |  |  |  |
| SS-36 | 220-220.1 | NO RECOVERY | – | 50/½" |  |  |  |  |  |  |  |  |  |  |
| SS-37 | 225-225.3 | BROWN SANDY SILT (SILTSTONE) | A-2 | 70/4" | N/P | 30 |  | 100 | 97 | 88 | 24 |  |  |  |
| – | 225.3 | END OF HOLE | – | – |  |  |  |  |  |  |  |  |  |  |

PROJECT I-205 COLUMBIA RIVER BRIDGE

STATION & OFFSET OREGON 125+20, 335 RT.

BORING NO. 52

GROUND ELEVATION 24 M.S.L.

SOIL TEST DATA

CH2M HILL

## TABLE 2 (Cont'd)

| SAMPLE NUMBER | DEPTH (FEET) | DESCRIPTION OF MATERIAL | CLASSIFICATION (AASHO) | "N" (BL/FT) | MOISTURE | | | GRADATION % PASSING | | | | γd (LBS/FT$^3$) | TRIAXIAL SHEAR | CONSOLIDATION* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | P.L. (%) | w (%) | L.L. (%) | #4 | #10 | #40 | #200 | | | |
| SS-1 | 2.4-4 | BROWN SANDY CLAYEY SILT | A-4 | 11 | 28 | 23 | 36 | | | | | | | |
| ST-1 | 5-6.8 | TOP: BROWN FINE SANDY SILT | A-4 | – | 28 | 36 | 34 | | | | | | | |
| – | – | BOTTOM: BROWN FINE SANDY SILT | A-4 | – | N/P | 33 | 28 | | | | | | | |
| ST-7* | 5-6.9 | TOP: BROWN FINE SAND | A-3 | – | | | | | | | | | | |
| – | – | MIDDLE: BROWN SILTY CLAY | A-7-6 | – | 29 | 35 | 44 | | | | | 76 | | See Fig. 20 |
| – | – | BOTTOM: BROWN FINE SAND | A-3 | – | | | | | 100 | 99 | 9 | | | |
| SS-2 | 7.5-9 | BROWN FINE SANDY SILT | A-4 | 3 | N/P | 36 | – | | | | | | | |
| ST-2 | 10-10.8 | BROWN FINE SANDY SILT | A-4 | – | 28 | 43 | 34 | | | | | | | |
| ST-8 | 10-12 | BROWN FINE SANDY SILT | A-4 | – | | | | | | | | 80,82 | See Fig.26 | See Fig.21 |
| SS-3 | 12-13.5 | BROWN SANDY CLAYEY SILT | A-4 | 2 | 27 | 39 | 33 | | | | | | | |
| ST-3 | 15-17 | BROWNISH GRAY SANDY SILTY CLAY | A-7-5 | – | | | | | | | | | | |
| ST-9 | 15-16.2 | TOP: BROWNISH GRAY SANDY SILTY CLAY | A-7-5 | – | 41 | 50 | 56 | | | | | 80 | | See Fig.22 |
| – | – | BOTTOM: BROWNISH GRAY SANDY SILTY CLAY | A-7-6 | – | 29 | 45 | 42 | | | | | | | |
| SS-4 | 17.5-19 | BROWNISH GRAY SANDY CLAYEY SILT | A-4 | 2 | 28 | 40 | 38 | | | | | | | |
| ST-4 | 20-22 | BROWNISH GRAY SANDY SILTY CLAY | A-7-5 | – | | | | | | | | | | |
| ST-10 | 20-21 | BROWNISH GRAY SANDY SILTY CLAY | A-7-5 | – | 30 | 46 | 50 | | | | | | | |
| SS-5 | 22.5-24 | BROWNISH GRAY SANDY SILTY CLAY | A-7-5 | 3 | 32 | 45 | 46 | | | | | | | |
| ST-5 | 25-27 | BROWNISH GRAY SANDY SILTY CLAY | A-7-5 | – | | | | | | | | | | |
| ST-11 | 25-26.8 | TOP: BROWNISH GRAY SANDY SILTY CLAY | A-7-5 | – | 29 | 36 | 43 | | | | | | | |
| – | – | BOTTOM: BROWNISH GRAY SANDY SILTY CLAY | A-7-6 | – | 29 | 39 | 40 | | | | | 83 | See Fig.27 | |
| SS-6 | 27.5-29 | BROWNISH GRAY SANDY SILTY CLAY | A-7-5 | 6 | 29 | 39 | 40 | | | | | | | |
| ST-6 | 30-32 | GRAYISH BROWN FINE SANDY SILT | A-4 | – | | | | | | | | | | |
| ST-12 | 30-31.1 | TOP: GRAY CLAYEY SILT | A-4 | – | 30 | 37 | 40 | | | | | 83 | | See Fig.23 |
| – | – | BOTTOM: GRAY SILTY CLAY | A-7-5 | – | 30 | 37 | 44 | | | | | | | |
| SS-7 | 32.5-34 | BROWNISH GRAY SILTY FINE SAND | A-3 | 4 | | | | | | | | | | |
| SS-8 | 35-36.5 | BROWN SILTY FINE SAND | A-2-4 | 6 | | | | | | | | | | |
| SS-9 | 40-41.5 | BROWN FINE SANDY SILT | A-4 | 9 | | | | | | | | | | |
| SS-10 | 45-46.5 | GRAY FINE SAND | A-3 | 28 | | | | | | | | | | |
| SS-11 | 50-51.5 | GRAY FINE SAND | A-3 | 16 | | | | | | | | | | |
| SS-12 | 55-56.5 | GRAY FINE SAND | A-3 | 18 | | | | | | | | | | |

PROJECT I-205 COLUMBIA RIVER BRIDGE

STATION & OFFSET OREGON 125+30, NO OFFSET

BORING NO. 53

GROUND ELEVATION 25 M.S.L.

*ST-7 THROUGH ST-12 WERE THE THE RESULT OF RESAMPLING

SOIL TEST DATA

CH2M HILL

## TABLE 2 (Cont'd)

| SAMPLE NUMBER | DEPTH (FEET) | DESCRIPTION OF MATERIAL | CLASSIFICATION (AASHO) | "N" (BL/FT) | MOISTURE |  |  | GRADATION % PASSING |  |  |  | $\gamma_d$ (LBS/FT$^3$) | TRIAXIAL SHEAR | CONSOLIDATION |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  |  |  |  |  | P.L. (%) | $\omega$ (%) | L.L. (%) | #4 | #10 | #40 | #200 |  |  |  |
| SS-13 | 60-61.5 | GRAY FINE SAND | A-3 | 21 |  |  |  |  |  |  |  |  |  |  |
| SS-14 | 65-66.5 | GRAY FINE SAND | A-3 | 32 |  |  |  |  |  |  |  |  |  |  |
| SS-15 | 70-71.5 | GRAY FINE SAND | A-3 | 33 |  |  |  |  |  |  |  |  |  |  |
| SS-16 | 75-76.5 | GRAY FINE SAND | A-3 | 37 |  |  |  |  | 100 | 83 | 9 |  |  |  |
| SS-17 | 80-81.5 | GRAY FINE SAND | A-3 | 26 |  |  |  |  |  |  |  |  |  |  |
| SS-18 | 85-86.5 | GRAY FINE SAND | A-3 | 37 |  |  |  |  |  |  |  |  |  |  |
| SS-19 | 90-91.5 | GRAY FINE SAND | A-3 | 33 |  |  |  |  |  |  |  |  |  |  |
| SS-20 | 95-96.5 | GRAY FINE SAND | A-3 | 56 |  |  |  |  |  |  |  |  |  |  |
| SS-21 | 100-101.5 | GRAY FINE SAND | A-3 | 40 |  |  |  |  |  |  |  |  |  |  |
| SS-22 | 105-106.5 | BROWISH GRAY SILTY FINE SAND | A-2-4 | 38 |  |  |  |  |  |  |  |  |  |  |
| SS-23 | 110-111.5 | GRAY FINE SAND | A-3 | 60 |  |  |  |  |  |  |  |  |  |  |
| SS-24 | 115-116.5 | GRAY FINE SAND | A-3 | 62 |  |  |  |  |  |  |  |  |  |  |
| SS-25 | 120-121.5 | GRAY FINE SAND | A-3 | 51 |  |  |  |  |  |  |  |  |  |  |
| SS-26 | 130-131.5 | GRAY FINE SAND | A-3 | 41 |  |  |  |  |  |  |  |  |  |  |
| SS-27 | 140-141.5 | GRAY FINE SAND | A-3 | 59 |  |  |  |  |  |  |  |  |  |  |
| SS-28 | 150-151.5 | BROWNISH GRAY SILTY FINE SAND | A-2-4 | 75 |  |  |  |  | 100 | 80 | 12 |  |  |  |
| SS-29 | 160-161.5 | BROWNISH GRAY FINE SANDY SILT | A-4 | 85 |  |  |  |  |  |  |  |  |  |  |
| SS-30 | 170-171.5 | GRAY COASE TO FINE SAND | A-1 | 68 |  |  |  |  |  |  |  |  |  |  |
| SS-31 | 180-181.5 | GRAY FINE SAND | A-3 | 54 |  |  |  |  |  |  |  |  |  |  |
| SS-31 | 190-191.5 | GRAY FINE SAND | A-3 | 78 |  |  |  |  |  |  |  |  |  |  |
| SS32 | 200-201.5 | GRAY FINE SAND | A-3 | 64 |  |  |  |  |  |  |  |  |  |  |
| SS-34 | 210-211.5 | GRAY FINE SAND | A-3 | 56 |  |  |  |  |  |  |  |  |  |  |
| SS-35 | 220-221.5 | GRAY FINE SAND | A-3 | 82 |  |  |  |  |  |  |  |  |  |  |
| SS-36 | 230-230.5 | BROWN SANDY SILTY CLAY (CLAYSTONE) | A-7 | 200/5" |  |  |  |  |  |  |  |  |  |  |
| SS-37 | 240-241.5 | BROWN SANDY SILTY CLAY (CLAYSTONE | A-7 | 118 |  |  |  |  |  |  |  |  |  |  |
| – | 241.5 | END OF HOLE | – | – |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  | G.W.T. MEASUREMENT WAS NOT TAKEN |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

PROJECT I-205 COLUMBIA RIVER BRIDGE

STATION & OFFSET OREGON 125+30, NO OFFSET

BORING NO. 53

GROUND ELEVATION 25 M.S.L.

**SOIL TEST DATA**

CH2M HILL

## TABLE 2 (Cont'd)

| SAMPLE NUMBER | DEPTH (FEET) | DESCRIPTION OF MATERIAL | CLASSIFICATION (AASHO) | "N" (BL/FT) | MOISTURE | | | GRADATION % PASSING | | | | $\gamma_d$ (LBS/FT$^3$) | TRIAXIAL SHEAR | CONSOLIDATION |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | P.L. (%) | w (%) | L.L. (%) | #4 | #10 | #40 | #200 | | | |
| SS-1 | 2.5-4 | BROWN FINE SANDY SILT | A-4 | 7 | | | | | | | | | | |
| SS-2 | 5-6.5 | BROWN FINE SANDY SILTY CLAY | A-7-6 | 4 | 26 | 35 | 43 | | | | | | | |
| ST-1 | 10-12 | BROWN SANDY CLAYEY SILT | A-4 | – | 30 | 45 | 37 | | | | | 74,80 | See Fig.28 | See Fig.24 |
| SS-3 | 12-13.5 | BROWN SLIGHTLY SANDY SILTY CLAY | A-7-6 | 4 | 33 | 44 | 44 | | | | | | | |
| – | 14.7 | G.W.T. (8/13/73) | – | – | | | | | | | | | | |
| SS-4 | 15-16.5 | BROWN SLIGHTLY SANDY SILTY CLAY | A-7-5 | 2 | 30 | 46 | 41 | | | | | | | |
| SS-5 | 20-21.5 | BROWN SLIGHTLY SANDY SILTY CLAY | A-7-6 | 2 | 36 | 48 | 49 | | | | | | | |
| ST-2 | 25-26.5 | GRAYISH BROWN FINE SANDY SILT | A-4 | – | 29 | 34 | 36 | | | | | | | |
| SS-6 | 27-28.5 | BROWN FINE SANDY SILT | A-4 | 6 | NIP | 38 | – | | | | | | | |
| SS-7 | 30-31.5 | BROWN SLIGHTLY SANDY SILTY CLAY | A-7-6 | 9 | 29 | 37 | 42 | | | | | | | |
| SS-8 | 35-36.5 | GRAYISH BROWN FINE SANDY SILT | A-4 | 9 | | | | | | 100 | 63 | | | |
| SS-9 | 40-41.5 | GREENISH BROWN FINE SANDY SILT | A-4 | 10 | | | | | | | | | | |
| SS-10 | 45-46.5 | GRAY SLIGHTLY SILTY FINE SAND | A-3 | 28 | | | | | | | | | | |
| SS-11 | 50-51.5 | GRAY SLIGHTLY SILTY FINE SAND | A-3 | 23 | | | | | 100 | 99 | 13 | | | |
| SS-12 | 55-56.5 | SAMPLE LOST | – | 12 | | | | | | | | | | |
| SS-13 | 60-61.5 | GRAY FINE SAND | A-3 | 32 | | | | | 100 | 92 | 5 | | | |
| SS-14 | 65-66.5 | GRAY FINE SAND | A-3 | 22 | | | | | 100 | 92 | 5 | | | |
| SS-15 | 70-71.5 | GRAY FINE SAND | A-3 | 37 | | | | | 100 | 92 | 5 | | | |
| SS-16 | 75-76.5 | GRAY FINE SAND | A-3 | 44 | | | | | | | | | | |
| SS-17 | 80-81.5 | GRAY FINE SAND | A-3 | 41 | | | | | | | | | | |
| SS-18 | 85-86.5 | GRAY FINE SAND | A-3 | 36 | | | | | | | | | | |
| SS-19 | 90-91.5 | GRAY FINE SAND | A-3 | 29 | | | | | | | | | | |
| SS-20 | 95-96.5 | BROWNISH GRAY SLIGHTLY SILTY FINE SAND | A-2 | 48 | | | | | | | | | | |
| SS-21 | 100-101.5 | GRAY FINE SAND | A-3 | 63 | | | | | | | | | | |
| SS-22 | 105-106.5 | GRAY FINE SAND | A-3 | 36 | | | | | | | | | | |
| SS-23 | 110-111.5 | GRAY FINE SAND | A-3 | 29 | | | | 100 | 96 | 84 | 7 | | | |
| SS-24 | 115-116.5 | GRAY FINE SAND | A-3 | 42 | | | | | | | | | | |
| SS-25 | 120-121.5 | GRAY FINE SAND | A-3 | 68 | | | | | | | | | | |
| SS-26 | 125-126.5 | GRAY FINE SAND | A-3 | 63 | | | | | | | | | | |
| SS-27 | 130-131.5 | GRAY FINE SAND | A-3 | 58 | | | | | 100 | 96 | 10 | | | |

PROJECT I-205 COLUMBIA RIVER BRIDGE STATION & OFFSET OREGON 125+10, 120 LT.

BORING NO. 54 GROUND ELEVATION 26

SOIL TEST DATA

CH2M HILL

## TABLE 2 (Cont'd)

| SAMPLE NUMBER | DEPTH (FEET) | DESCRIPTION OF MATERIAL | CLASSIFI-CATION (AASHO) | "N" (BL/FT) | MOISTURE |  |  | GRADATION % PASSING |  |  |  | $\gamma_d$ (LBS/FT$^3$) | TRIAXIAL SHEAR | CONSOLI-DATION |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  |  |  |  |  | P.L. (%) | w (%) | L.L. (%) | #4 | #10 | #40 | #200 |  |  |  |
| SS-28 | 135-136.5 | GRAY FINE SAND | A-3 | 82 |  |  |  |  |  |  |  |  |  |  |
| SS-29 | 140-141.5 | GRAY FINE SAND | A-3 | 70 |  |  |  |  |  |  |  |  |  |  |
| SS-30 | 145-146.5 | GRAY FINE SAND | A-3 | 50 |  |  |  |  |  |  |  |  |  |  |
| SS-31 | 150-151.5 | DARK GRAY COARSE TO FINE SAND | A-1-b | 75 |  |  |  |  |  |  |  |  |  |  |
| SS-32 | 155-156.5 | GRAY FINE SAND | A-3 | 75 |  |  |  |  |  |  |  |  |  |  |
| SS-33 | 160-161.5 | GRAY FINE SAND | A-3 | 72 |  |  |  |  |  |  |  |  |  |  |
| SS-34 | 165.5-167 | GRAY COARSE TO FINE SAND | A-1-b | 46 |  |  |  |  |  |  |  |  |  |  |
| SS-35 | 175-176.5 | GRAY COARSE TO FINE SAND | A-1-b | 111 |  |  |  |  |  |  |  |  |  |  |
| SS-36 | 185-186.5 | GRAY FINE SAND | A-3 | 75 |  |  |  |  |  |  |  |  |  |  |
| SS-37 | 194.5-196 | GRAY FINE SAND | A-3 | 54 |  |  |  |  |  |  |  |  |  |  |
| SS-38 | 205-206.5 | GRAY FINE SAND | A-3 | 65 |  |  |  | 100 | 96 | 50 | 8 |  |  |  |
| SS-39 | 215-216.5 | GRAY FINE SAND | A-3 | 56 |  |  |  |  |  |  |  |  |  |  |
| SS-40 | 225-226.5 | GRAY FINE SAND | A-3 | 103 |  |  |  |  |  |  |  |  |  |  |
| SS-41 | 234-234.8 | BROWNISH GRAY SANDY SILTY CLAY (CLAYSTONE) | A-7-5 | 51/4" | 39 | 39 | 54 |  |  |  |  |  |  |  |
| SS-42 | 245-246.5 | BROWN SANDY SILTY CLAY (CLAYSTONE) | A-7-6 | 93 | 41 | 33 | 71 |  |  |  |  |  |  |  |
| – | 246.5 | END OF HOLE | – | – |  |  |  |  |  |  |  |  |  |  |

PROJECT I-205 COLUMBIA RIVER BRIDGE

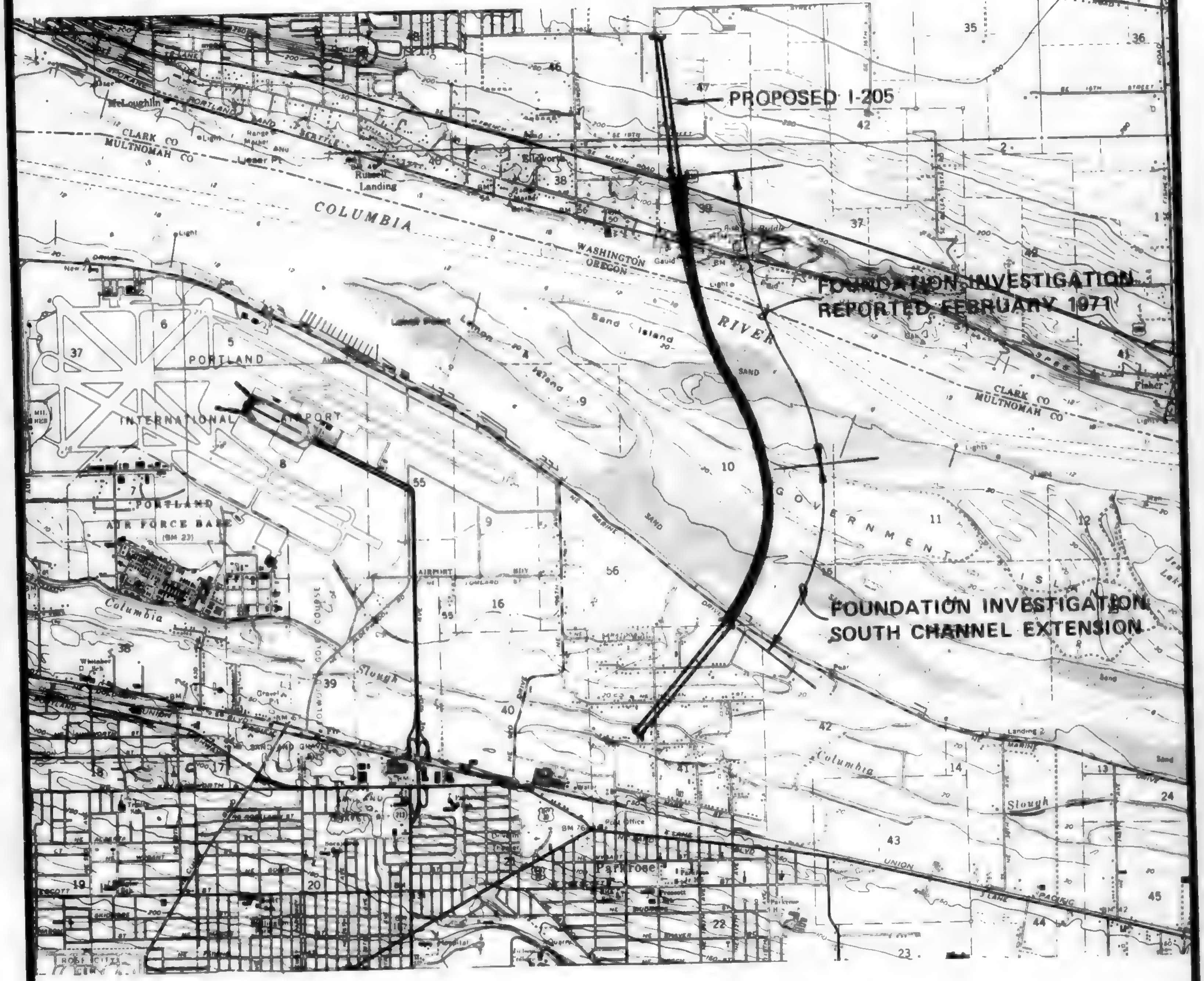
STATION & OFFSET OREGON 125+10, 120 LT.

BORING NO. 54

GROUND ELEVATION 26 MSL

SOIL TEST DATA

CH2M HILL


PROPOSED I-205
FOUNDATION INVESTIGATION
REPORTED FEBRUARY 1971
FOUNDATION INVESTIGATION
SOUTH CHANNEL EXTENSION
COLUMBIA
RIVER
WASHINGTON
OREGON
CLARK CO
MULTNOMAH CO
McLoughlin
Ellsworth
Russell Landing
Lieser Pt
Sand Island
PORTLAND
INTERNATIONAL
AIRPORT
PORTLAND
AIR FORCE BASE
GOVERNMENT
ISLAND
Columbia
Slough
Parkrose
UNION
PACIFIC

EXISTING TOPOGRAPHY AND RIVER CONFIGURATION

NOTE: BASE MAPS U.S.G.S. SE/4 PORTLAND 15' QUADRANGLE, 1961
SCALE: APPROXIMATELY 1" = 4,000'

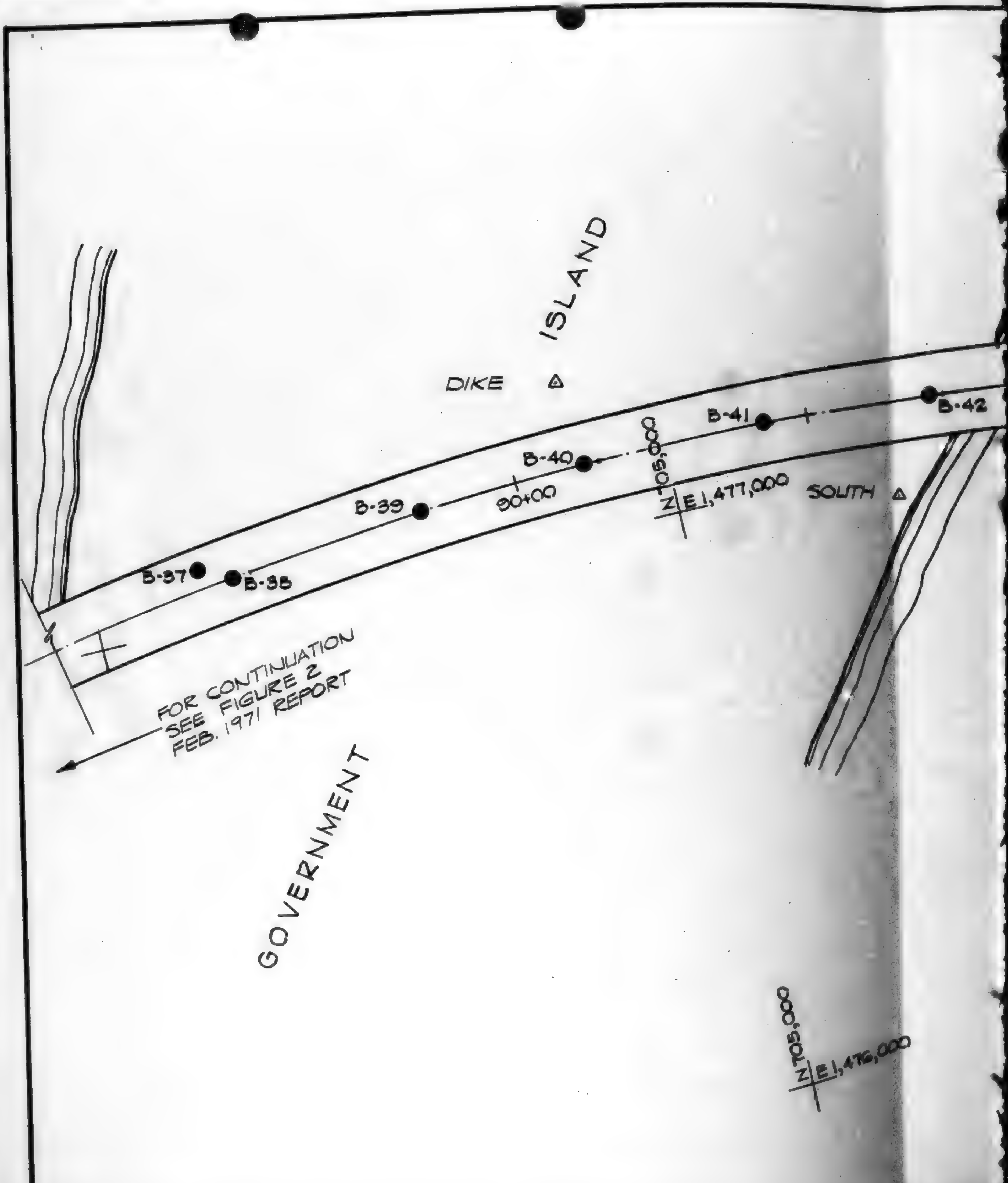
**FIGURE 10**

SVERDRUP & PARCEL AND ASSOCIATES, INC.
FOUNDATION INVESTIGATION
I-205 COLUMBIA RIVER BRIDGE

VICINITY MAP

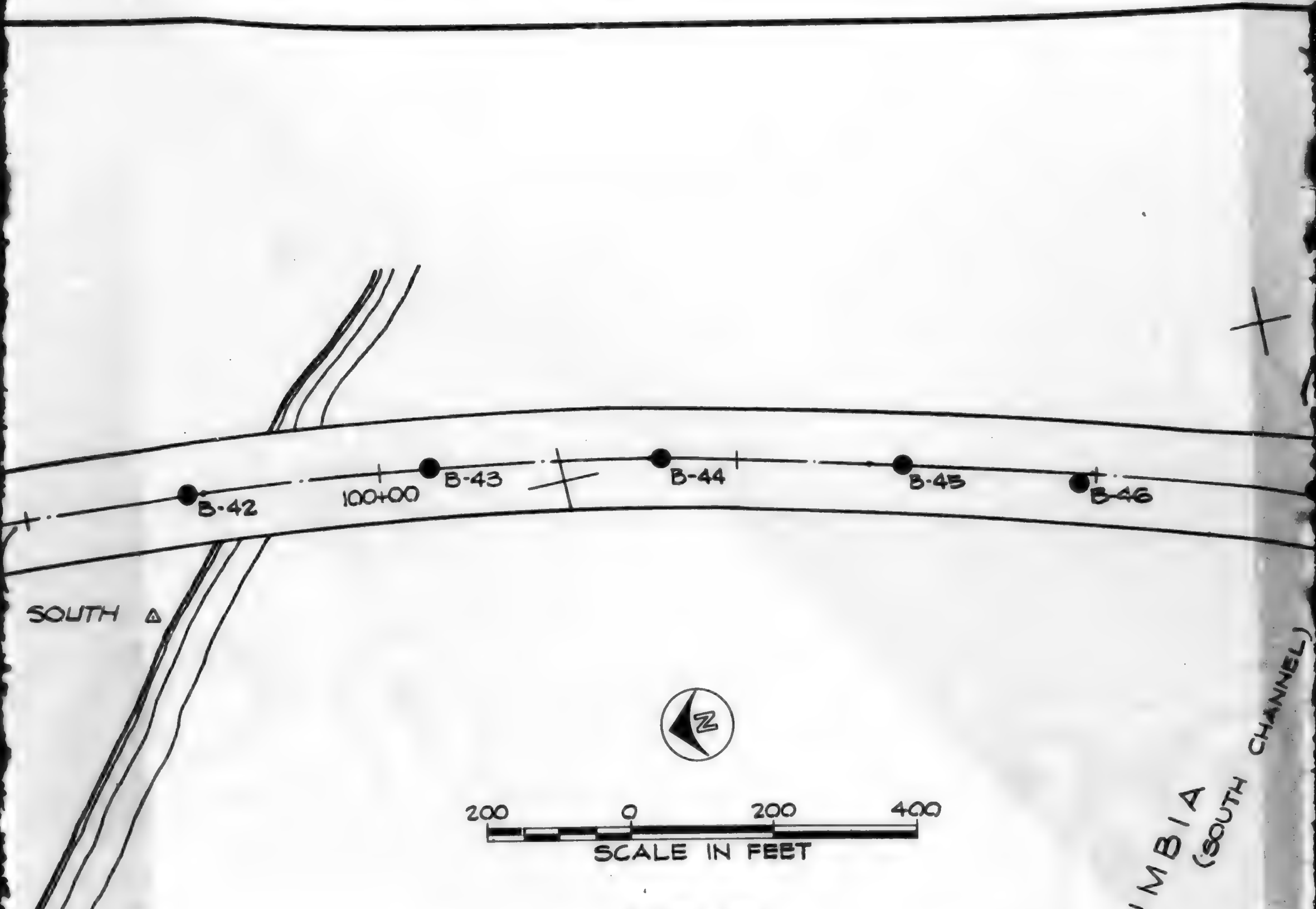
CH2M HILL

P6163.9



FOR CONTINUATION SEE FIGURE 2 FEB. 1971 REPORT

ISLAND
DIKE △
B-37
B-38
B-39
90+00
B-40
B-41
B-42
N 705,000
E 1,477,000
SOUTH △
GOVERNMENT
N 705,000
E 1,476,000
P6163.9


B-42
100+00
B-43
B-44
B-45
B-46
SOUTH
N
200
0
200
400
SCALE IN FEET
LEGEND
B-37 ● BORING LOCATION
▲ SURVEY CONTROL MONUMENTS (OREGON ℄ STATIONS AND COORDINATES USED FOR SURVEY CONTROL)
COLUMBIA
(SOUTH CHANNEL)
N 705,0
E 1,476,000

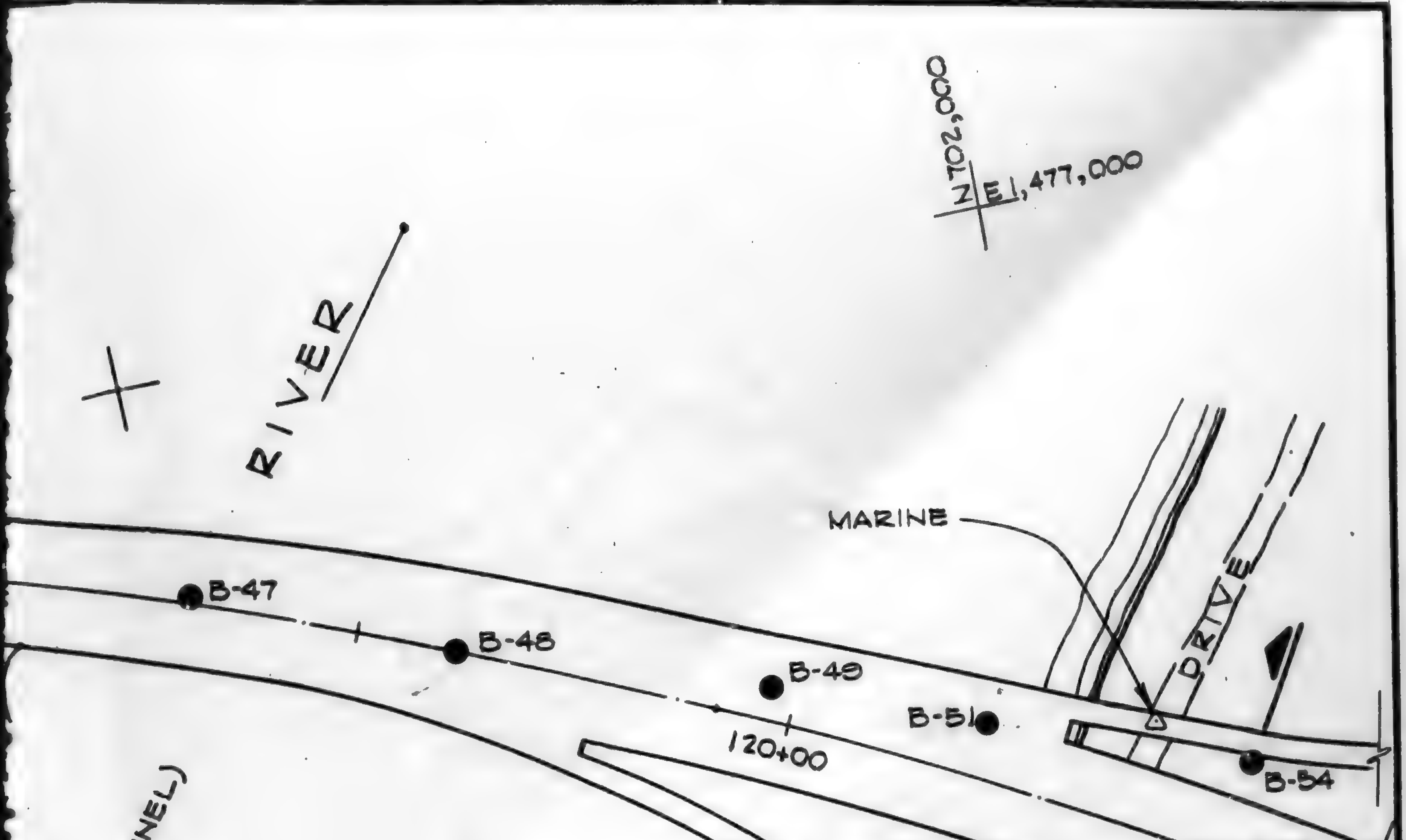

N702,000
E1,477,000
RIVER
MARINE
DRIVE
B-47
B-48
B-49
B-51
120+00
B-54
B-53
B-50
N702,000
E1,476,000
B-52
MARINE
SECTION A
SEE FIG. 12
IA
(SOUTH CHANNEL)

FIGURE 11

SVERDRUP & PARCEL AND ASSOCIATES, INC.
FOUNDATION INVESTIGATION
I-205 COLUMBIA RIVER BRIDGE

SITE PLAN AND BORING LOCATIONS

CH2M HILL

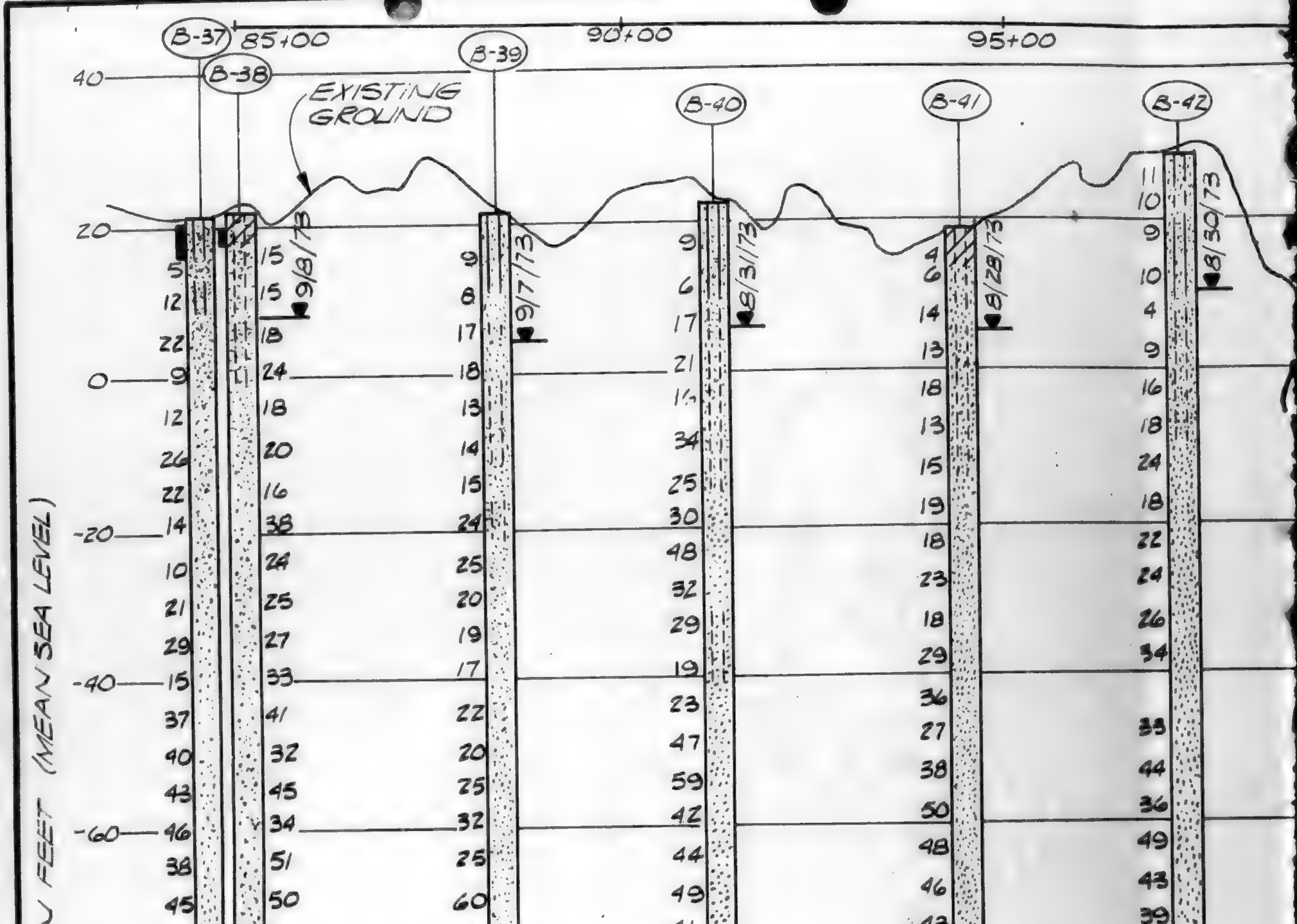

B-37
B-38
B-39
B-40
B-41
B-42
85+00
90+00
95+00
EXISTING GROUND
ELEVATION IN FEET (MEAN SEA LEVEL)
40
20
0
-20
-40
-60
-80
-100
-120
-140
5 12 22 9 12 26 22 14 10 21 29 15 37 40 43 46 38 45 51 59 56 67 56 57 56
73
58/6"
9/8/73
15 15 18 24 18 20 16 38 24 25 27 33 41 32 45 34 51 50 63 52 47 53 63
55/1½"
9/7/73
9 8 17 18 13 14 15 24 25 20 19 17 22 20 25 32 25 60 48 59 52 54 58 67 67
8/31/73
9 6 17 21 14 34 25 30 48 32 29 19 23 47 59 42 44 49 41 19 58 55 48 41 62
60/3"
8/28/73
4 6 14 13 18 13 15 19 18 23 18 29 36 27 38 50 48 46 43 58 39 51 66 57
53/3"
50/1½"
8/30/73
11 10 9 10 4 9 16 18 24 18 22 24 26 34 33 44 36 49 43 39 53 52 51 60
51/4"
51/5"
FOR CONTINUATION SEE FIGURES FEB. 1971 REPORT

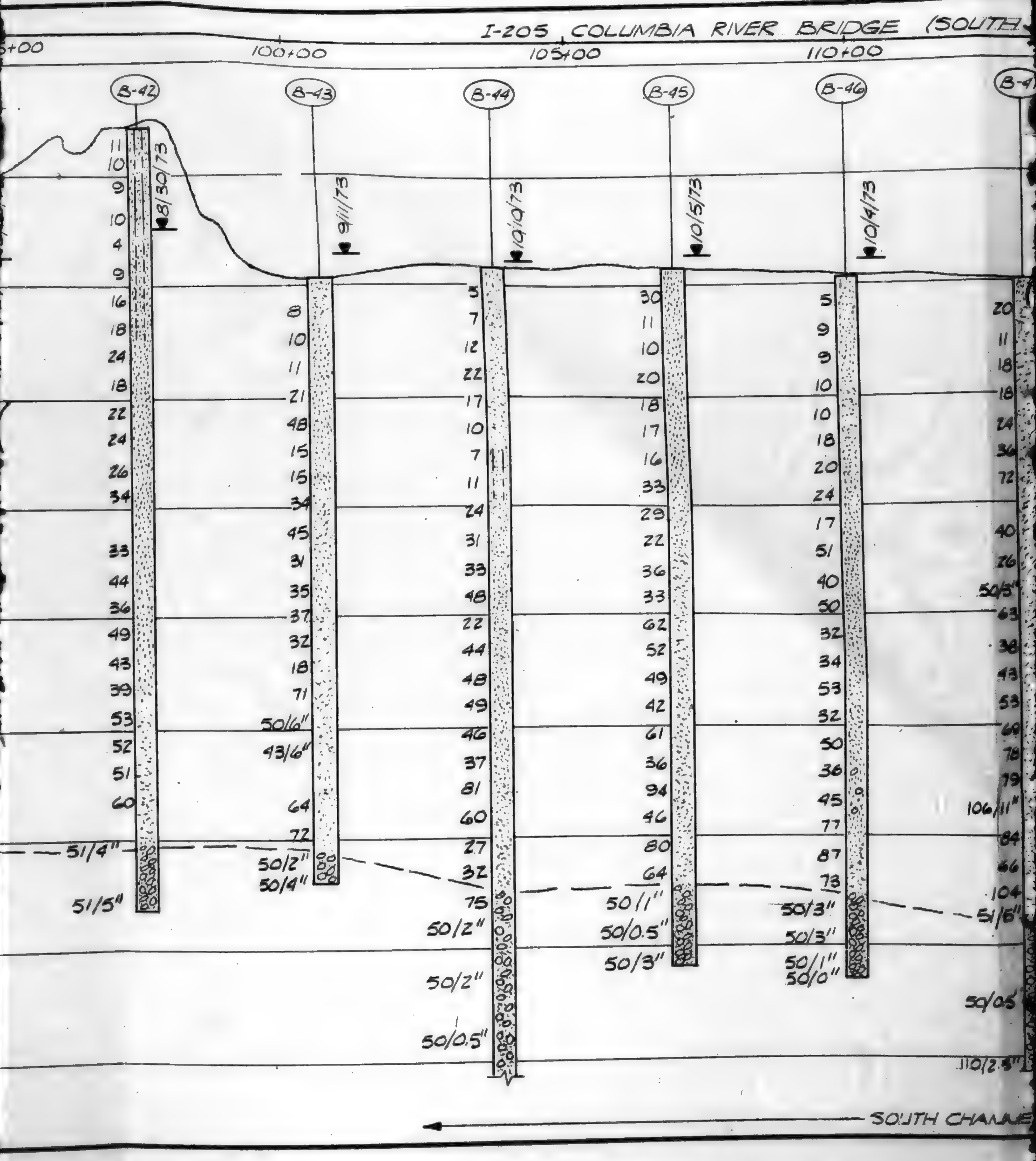
FIGURE 12

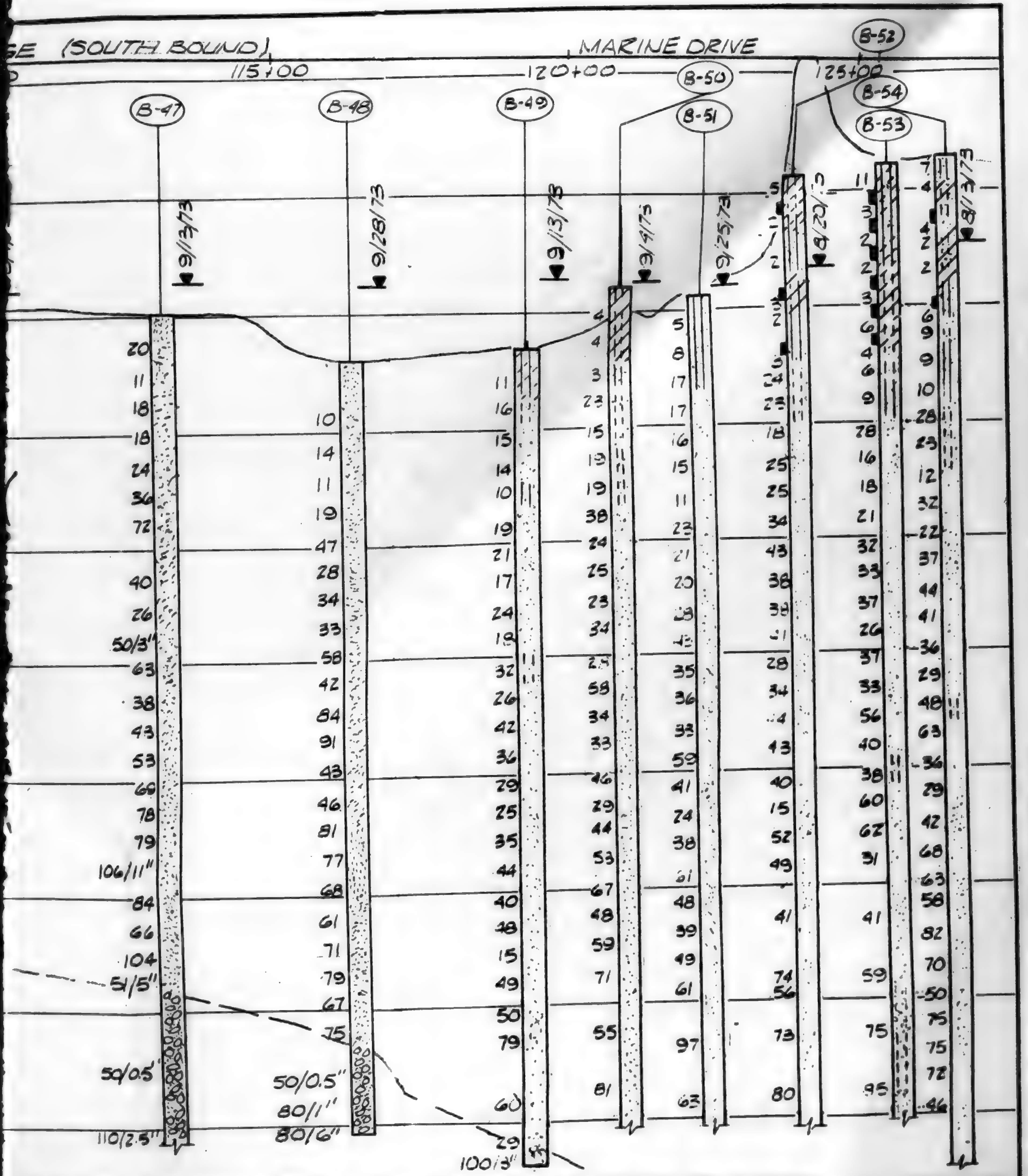
SVERDRUP & PARCEL AND ASSOCIATES, INC.
FOUNDATION INVESTIGATION
I-205 COLUMBIA RIVER BRIDGE

BORING LOGS AND PROFILE

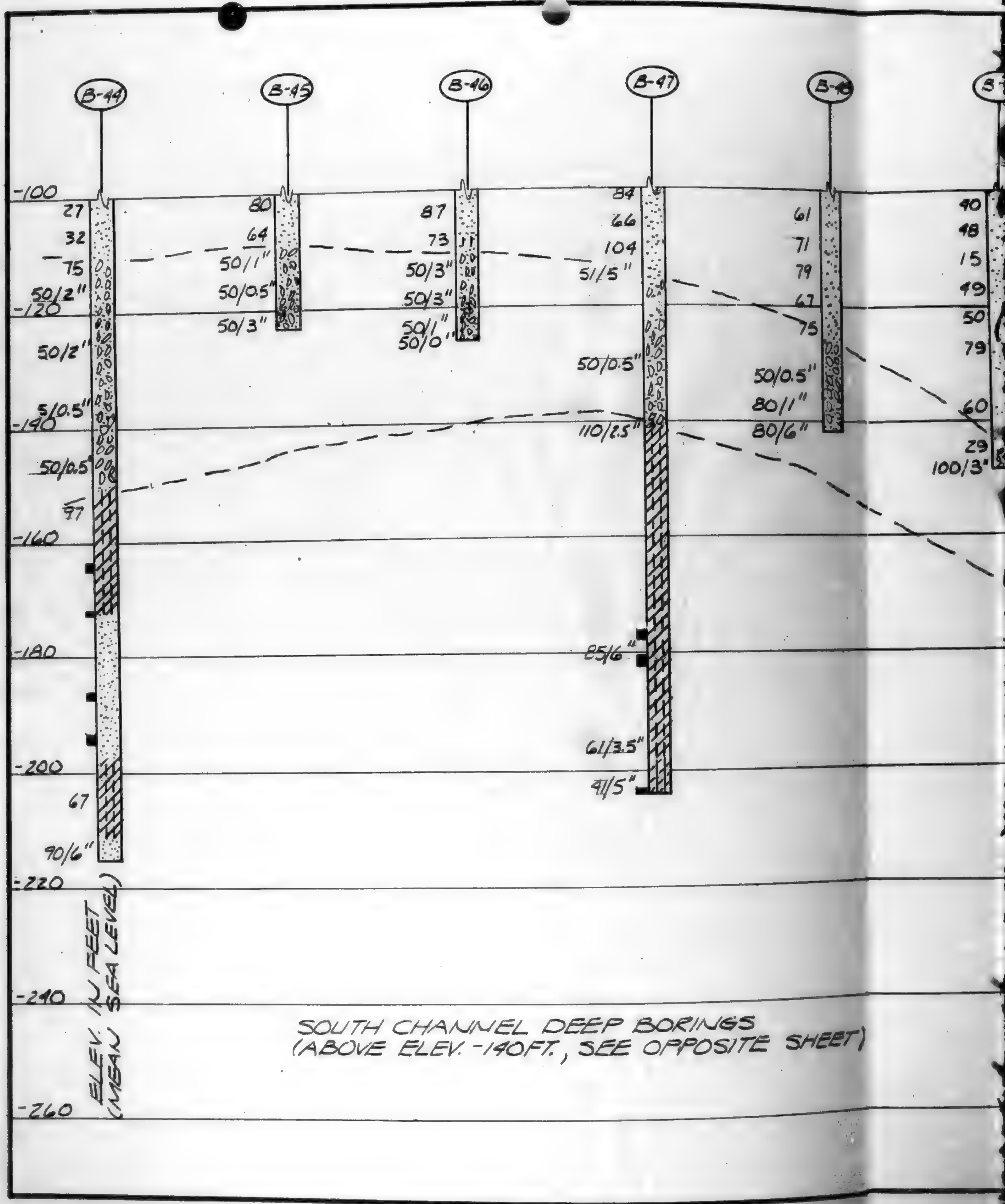
CH2M HILL

P6163.9


I-205 COLUMBIA RIVER BRIDGE (SOUTH
+00
100+00
105+00
110+00
B-42
8/30/73
51/4"
51/5"
B-43
9/11/73
50/6"
43/6"
50/2"
50/4"
B-44
10/10/73
50/2"
50/2"
50/0.5"
B-45
10/5/73
50/1"
50/0.5"
50/3"
B-46
10/4/73
50/3"
50/3"
50/1"
50/0"
B-4
50/3"
106/11"
51/6"
50/0.5
110/2.5"
SOUTH CHANNE

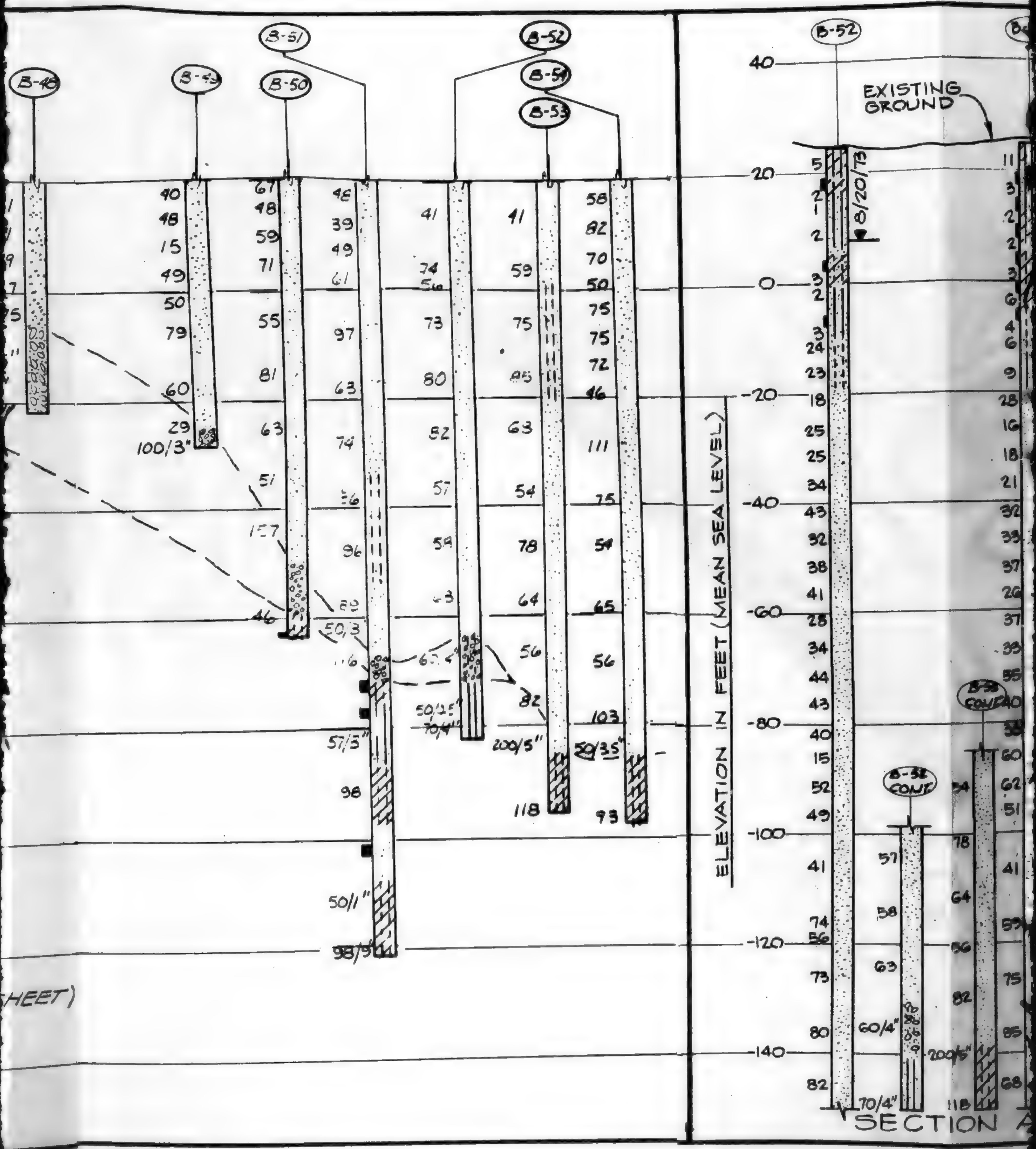

GE (SOUTH BOUND)
MARINE DRIVE
115+00
120+00
125+00
B-47
B-48
B-49
B-50
B-51
B-52
B-54
B-53
9/13/73
9/28/73
9/13/73
9/4/73
9/25/73
8/20/73
8/13/73
20 11 18 18 24 36 72 40 26 50/3" 63 38 43 53 69 78 79 106/11" 84 66 104 51/5" 50/0.5" 110/2.5"
10 14 11 19 47 28 34 33 58 42 84 91 43 46 81 77 68 61 71 79 67 75 50/0.5" 80/1" 80/6"
11 16 15 14 10 19 21 17 24 18 32 26 42 36 29 25 35 44 40 48 15 49 50 79 60 29 100/3"
4 4 3 23 15 19 19 38 24 25 23 34 28 58 34 33 46 29 44 53 67 48 59 71 55 81
5 8 17 17 16 15 11 23 21 20 28 43 35 36 33 59 41 24 38 61 48 39 49 61 97 63
5 11 2 3 2 5 24 23 18 25 25 34 43 38 38 31 28 34 44 43 40 15 52 49 41 74 56 73 80
11 3 2 2 2 3 2 6 4 6 9 28 16 18 21 32 33 37 26 37 33 56 40 38 60 62 31 41 59 75 95
7 4 4 2 2 6 9 9 10 28 23 12 32 22 37 44 41 36 29 48 63 36 29 42 68 63 58 82 70 50 75 75 72 96

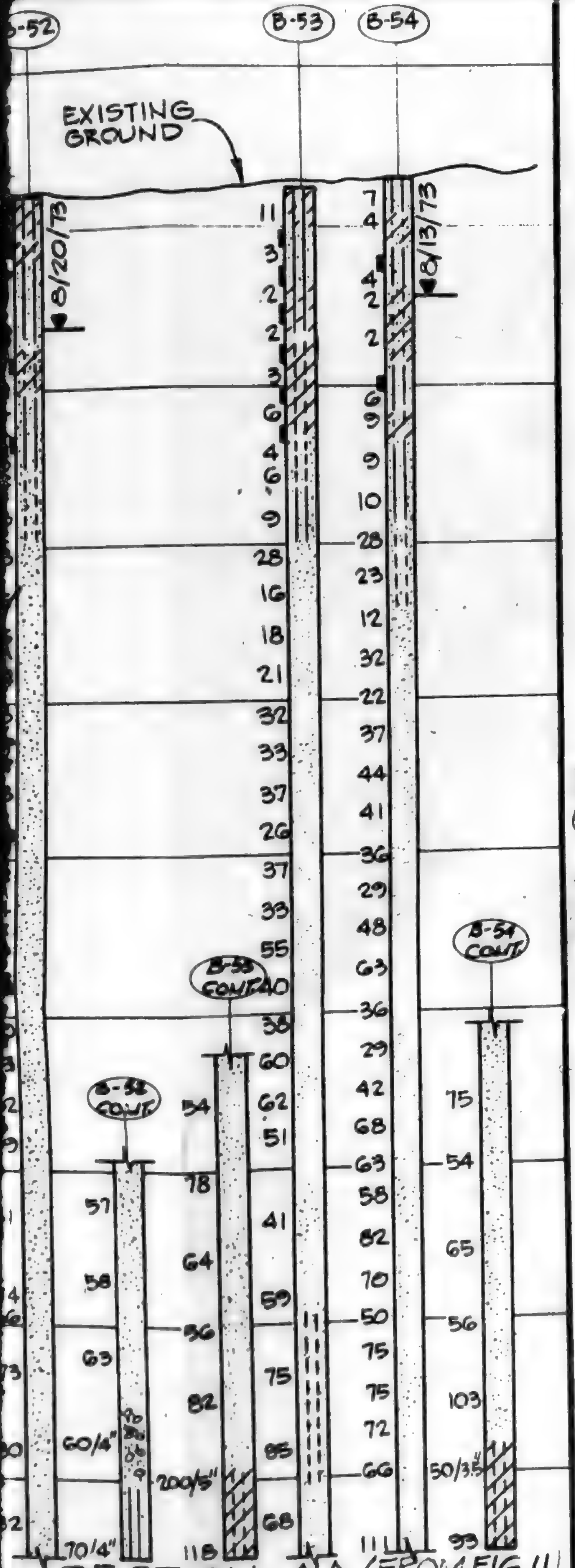
SOUTH CHANNEL DEEP BORING EXTENSIONS, SEE OPPOSITE SHEET →



SOUTH CHANNEL DEEP BORINGS
(ABOVE ELEV. -140FT., SEE OPPOSITE SHEET)

B-44
B-45
B-46
B-47
B-48
-100
-120
-140
-160
-180
-200
-220
-240
-260
ELEV. IN FEET (MEAN SEA LEVEL)
27
32
75
50/2"
50/2"
5/0.5"
50/0.5"
97
67
90/6"
80
64
50/1"
50/0.5"
50/3"
87
73
50/3"
50/3"
50/1"
50/0"
84
66
104
51/5"
50/0.5"
110/2.5"
85/6"
61/3.5"
41/5"
61
71
79
67
75
50/0.5"
80/1"
80/6"
40
48
15
49
50
79
60
29
100/3"


B-48
B-49
B-50
B-51
B-52
B-54
B-53
-20
-40
-60
-80
-100
-120
-140
EXISTING GROUND
8/20/73
ELEVATION IN FEET (MEAN SEA LEVEL)
B-52
B-58 CONT
B-58 CONT
100/3"
50/3
57/3"
50/1"
98/9"
50/3.5"
70/4"
200/5"
50/3.5"
70/4"
60/4"
200/5"
(SHEET)
SECTION A


B-52
B-53
B-54
EXISTING GROUND
8/20/73
8/13/73
11
3
2
2
3
6
4
6
9
28
16
18
21
32
33
37
26
37
33
55
40
38
60
62
51
41
59
75
85
68
7
4
4
2
2
6
9
9
10
28
23
12
32
22
37
44
41
36
29
48
63
36
29
42
68
63
58
82
70
50
75
75
72
66
11
B-52 CONT.
57
58
63
60/4"
70/4"
B-53 CONT'D
54
78
64
56
82
200/5"
118
B-54 CONT.
75
54
65
56
103
50/3.5"
99

SECTION AA (FROM FIG.11)

## BORING LOG SYMBOLS

| | | | |
|---|---|---|---|
| ▥ | SILT | ▨ | SILTY SAND |
| ▨ | CLAYEY SILT | ▩ | SILTY GRAVEL |
| ▥ | SANDY SILT | ▨ | SILTY CLAY |
| ▒ | SAND | ▩ | SANDY GRAVEL |

## BORING LOG LEGEND

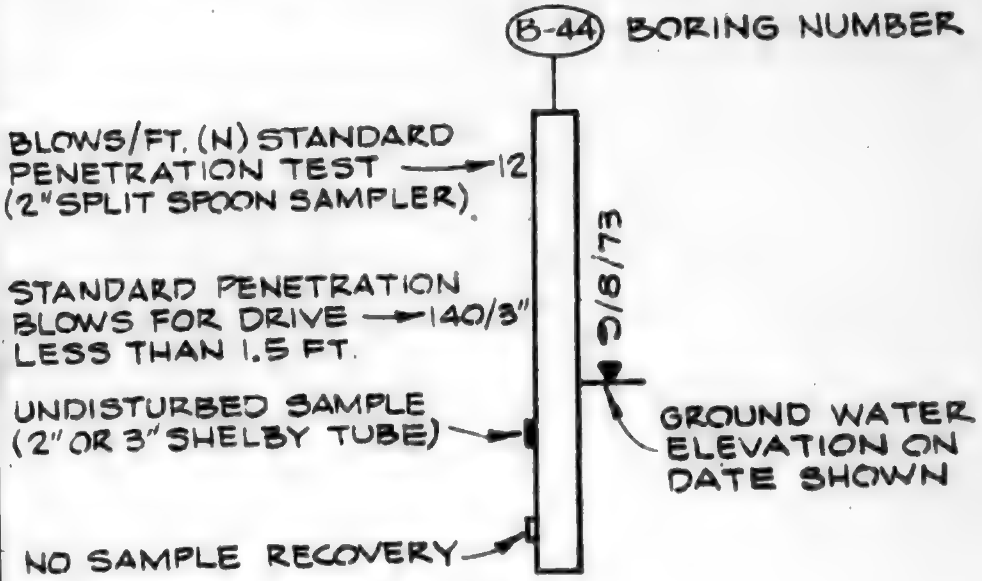
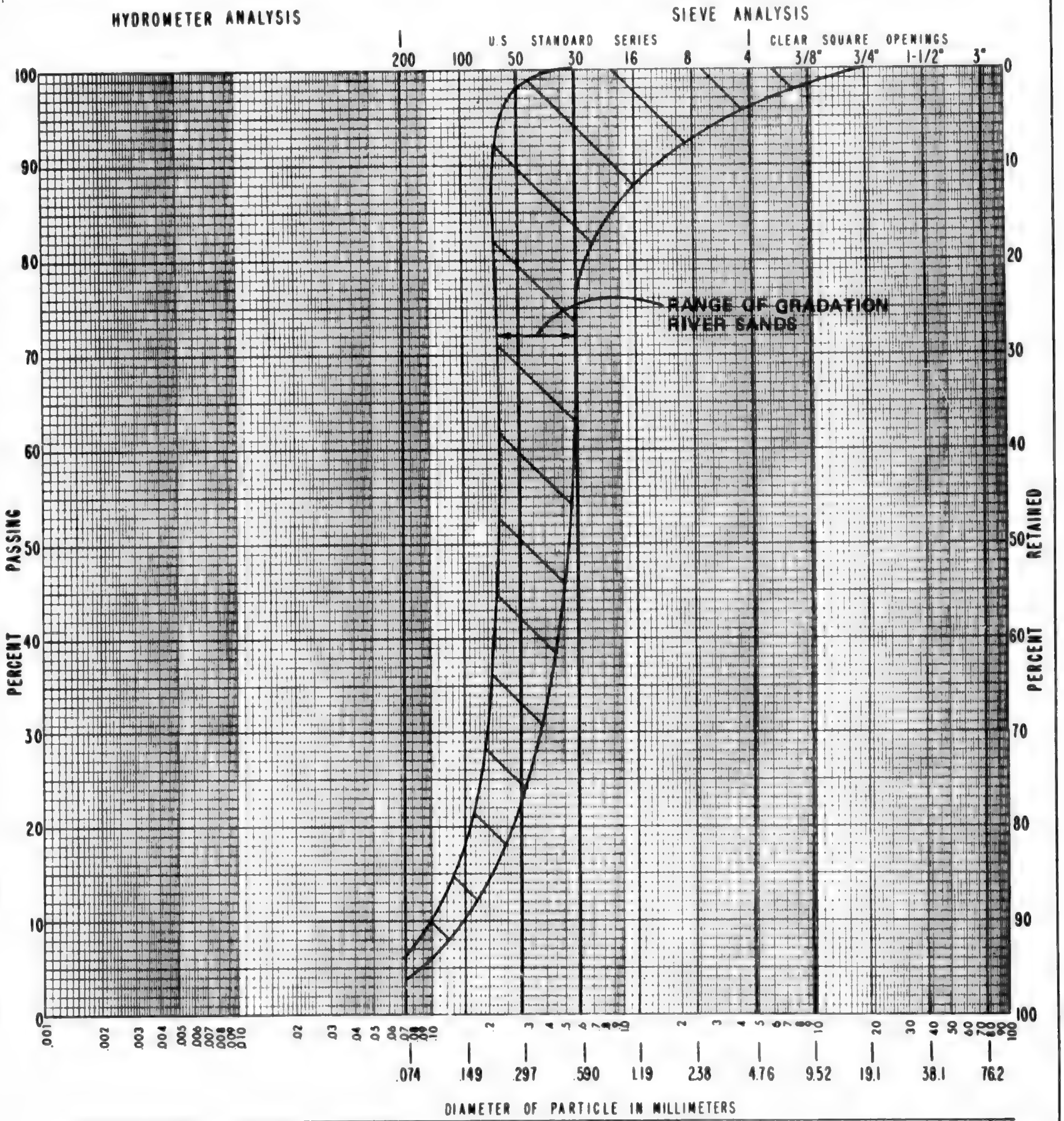

B-44
BORING NUMBER
BLOWS/FT. (N) STANDARD PENETRATION TEST (2" SPLIT SPOON SAMPLER)
12
STANDARD PENETRATION BLOWS FOR DRIVE LESS THAN 1.5 FT.
140/3"
UNDISTURBED SAMPLE (2" OR 3" SHELBY TUBE)
NO SAMPLE RECOVERY
5/8/73
GROUND WATER ELEVATION ON DATE SHOWN

**FIGURE 12**

**SVERDRUP & PARCEL AND ASSOCIATES, INC.**
**FOUNDATION INVESTIGATION**
**I-205 COLUMBIA RIVER BRIDGE**

**BORING LOGS AND PROFILE**

CH2M HILL



| CLAY (PLASTIC) TO SILT (NON-PLASTIC) | SAND | | | GRAVEL | | COBBLES |
|---|---|---|---|---|---|---|
| | FINE | MEDIUM | COARSE | FINE | COARSE | |

NOTE: GRAIN SIZE ANALYSIS FROM BORINGS B-38 TO B-54

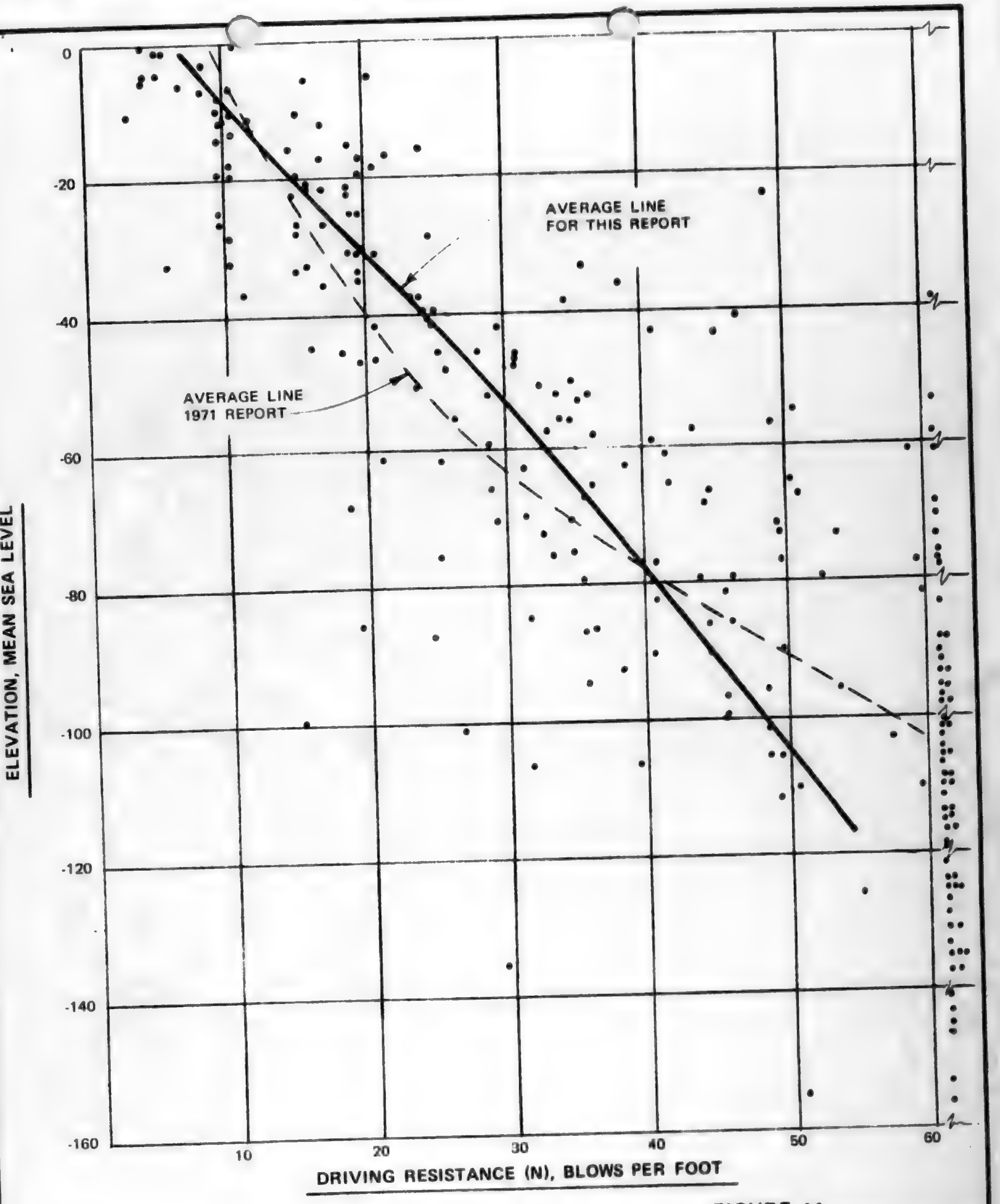
FIGURE 13

SVERDRUP & PARCEL AND ASSOCIATES, INC.
FOUNDATION INVESTIGATION
I-205 COLUMBIA RIVER BRIDGE

GRAIN SIZE ANALYSIS
FOR RIVER SANDS

CH2M HILL

P6163.9



**NOTE:**

STANDARD PENETRATION TEST DRIVING RESISTANCE, N = BLOWS PER FOOT TO DRIVE 2-INCH O.D. SPLIT-SPOON SAMPLER WITH 140 LBS. WEIGHT FALLING 30-INCHES PER BLOW.

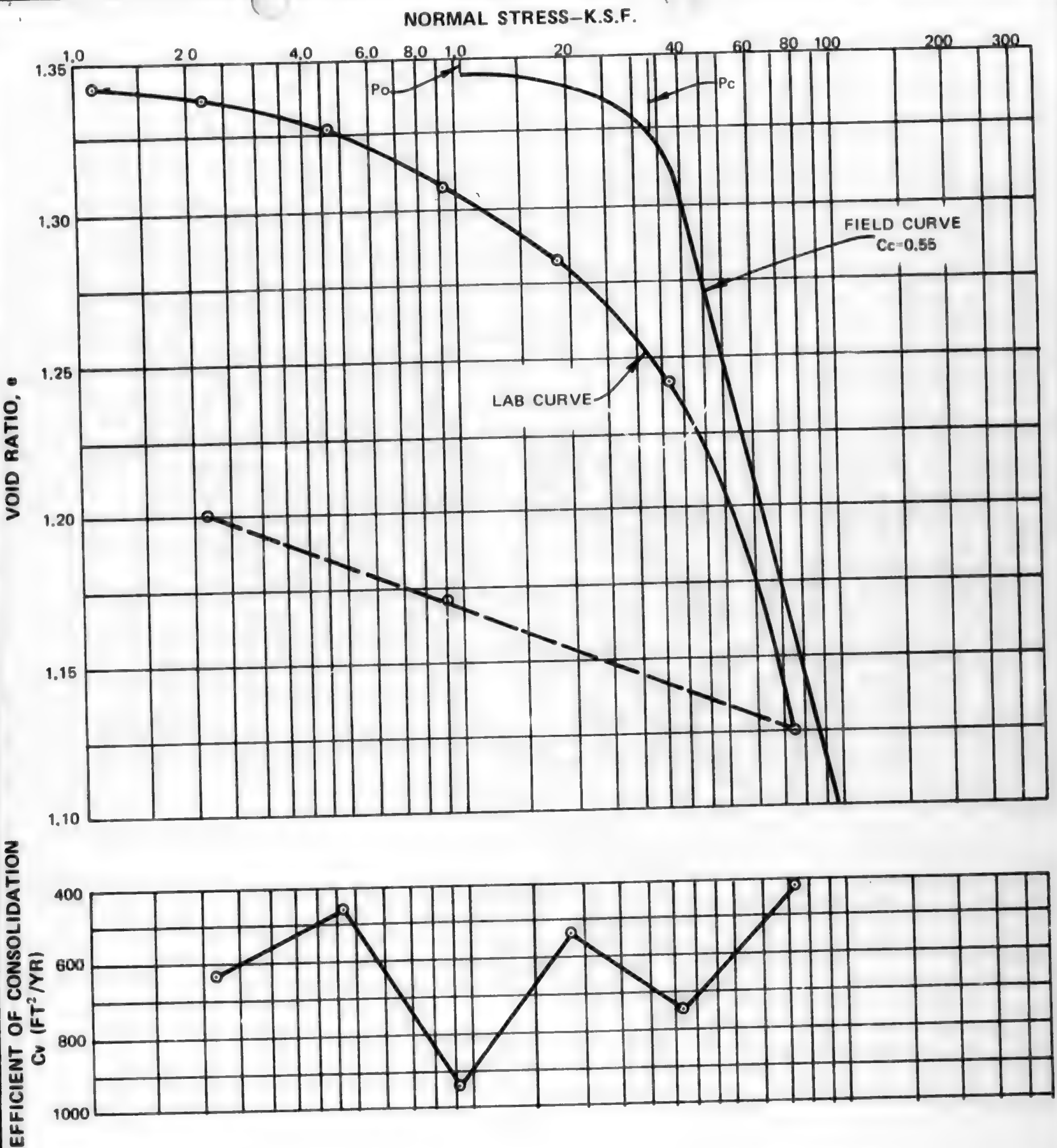
## FIGURE 14

SVERDRUP & PARCEL AND ASSOCIATES, INC.
FOUNDATION INVESTIGATION
I-205 COLUMBIA RIVER BRIDGE

## DRIVING RESISTANCE OF RIVER SANDS

CORNELL, HOWLAND, HAYES & MERRYFIELD
CLAIR A. HILL & ASSOCIATES
ENGINEERS • PLANNERS • ECONOMISTS

P6163.9



SAMPLE B-47, ST-2
GRAY SILTY CLAY (CLAYSTONE)
DEPTH 182 FEET
DRY UNIT WEIGHT 72 PCF
MOISTURE CONTENT 52%
SPECIFIC GRAVITY 2.70
DEGREE OF SATURATION 99%
INITITAL VOID RATIO 1.337

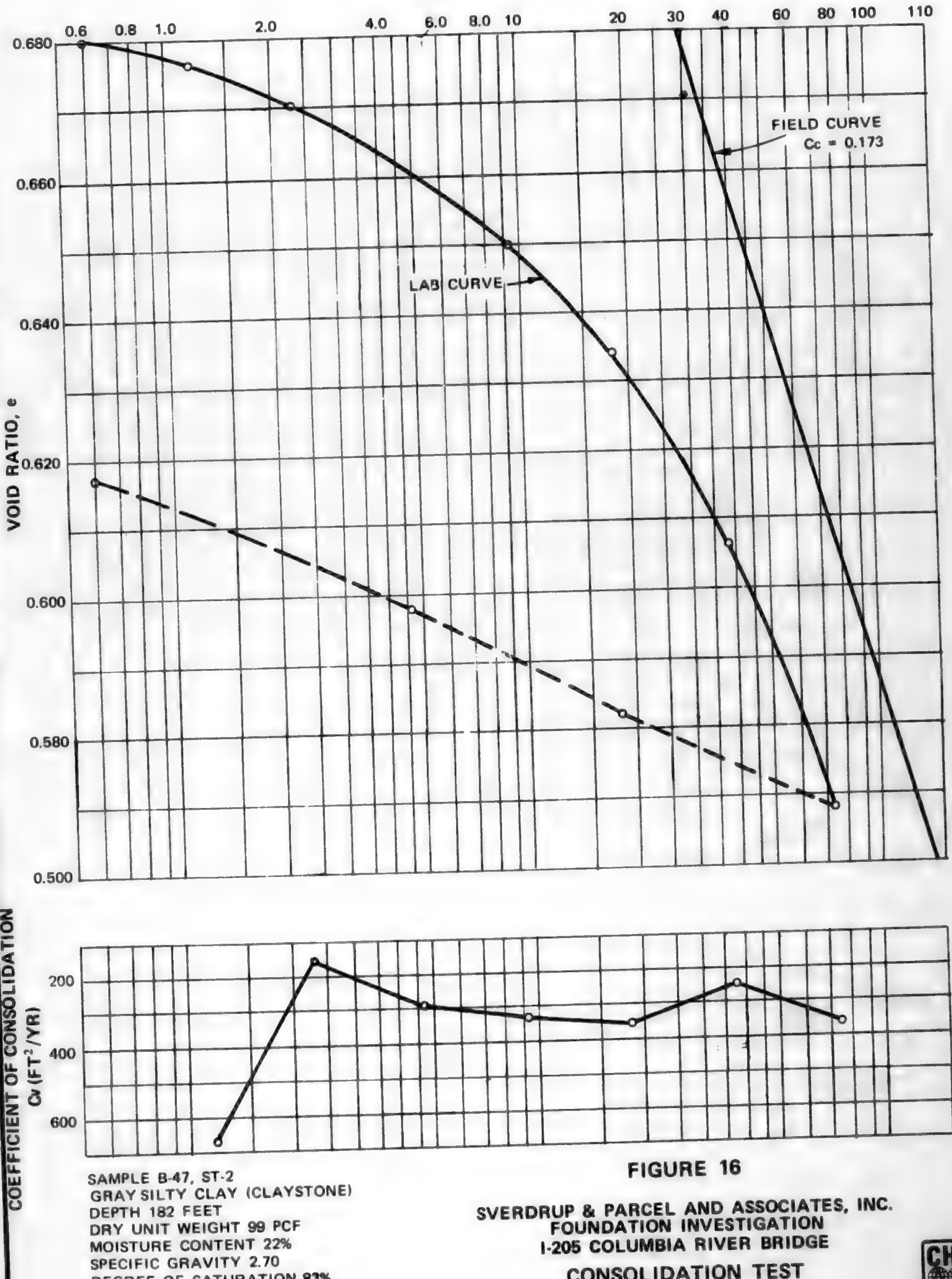
FIGURE 15

SVERDRUP & PARCEL AND ASSOCIATES, INC.
FOUNDATION INVESTIGATION
I-205 COLUMBIA RIVER BRIDGE

## CONSOLIDATION TEST
## TROUTDALE FORMATION
## CLAYSTONE

CH2M HILL

P6163.9



SAMPLE B-47, ST-2
GRAY SILTY CLAY (CLAYSTONE)
DEPTH 182 FEET
DRY UNIT WEIGHT 99 PCF
MOISTURE CONTENT 22%
SPECIFIC GRAVITY 2.70
DEGREE OF SATURATION 83%
INITIAL VOID RATIO 0.711
PRECONSOLIDATION PR. 27 KSF

FIGURE 16

SVERDRUP & PARCEL AND ASSOCIATES, INC.
FOUNDATION INVESTIGATION
I-205 COLUMBIA RIVER BRIDGE

CONSOLIDATION TEST
TROUTDALE FORMATION
CLAYSTONE

CH2M HILL

P6163.9

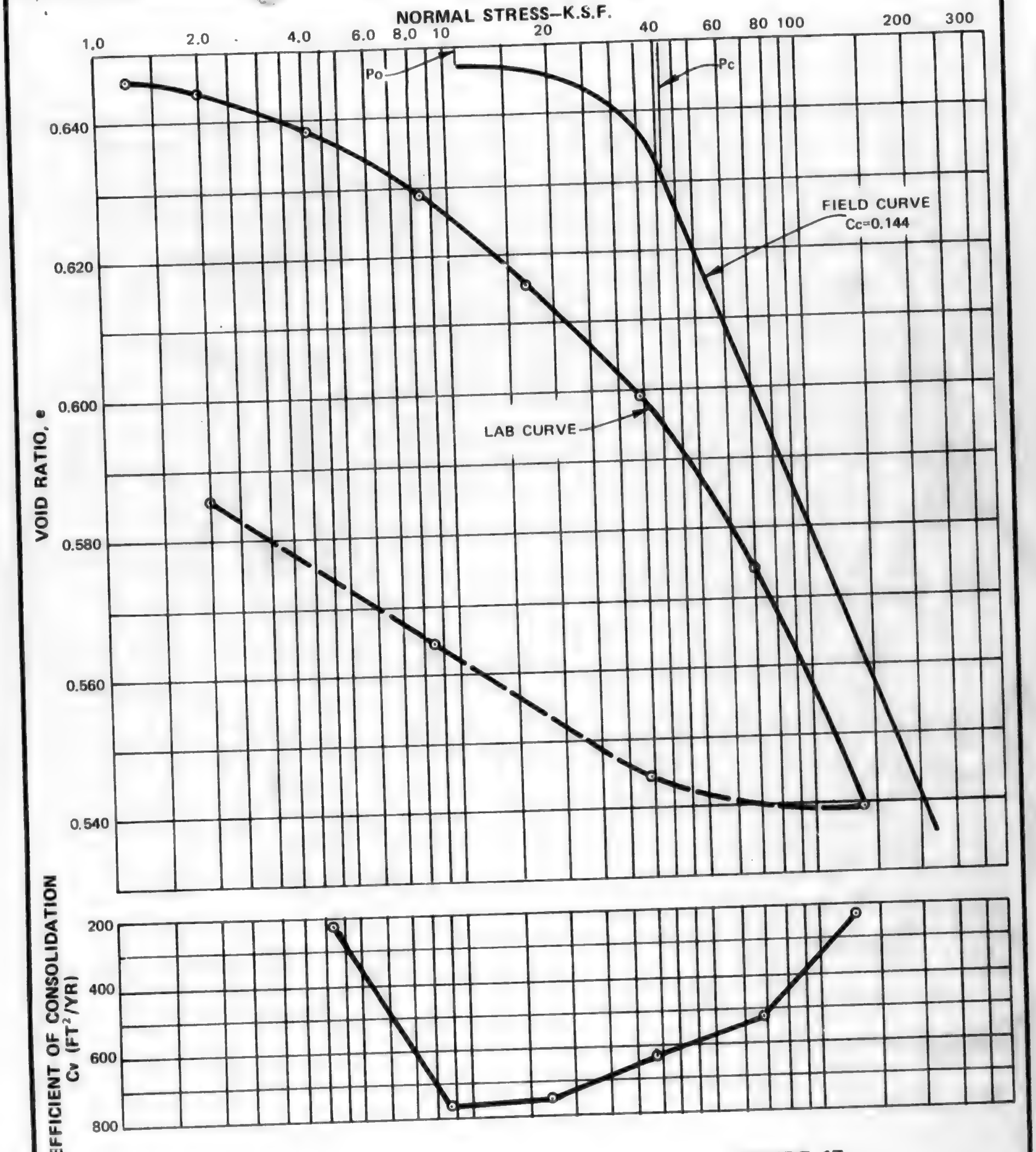


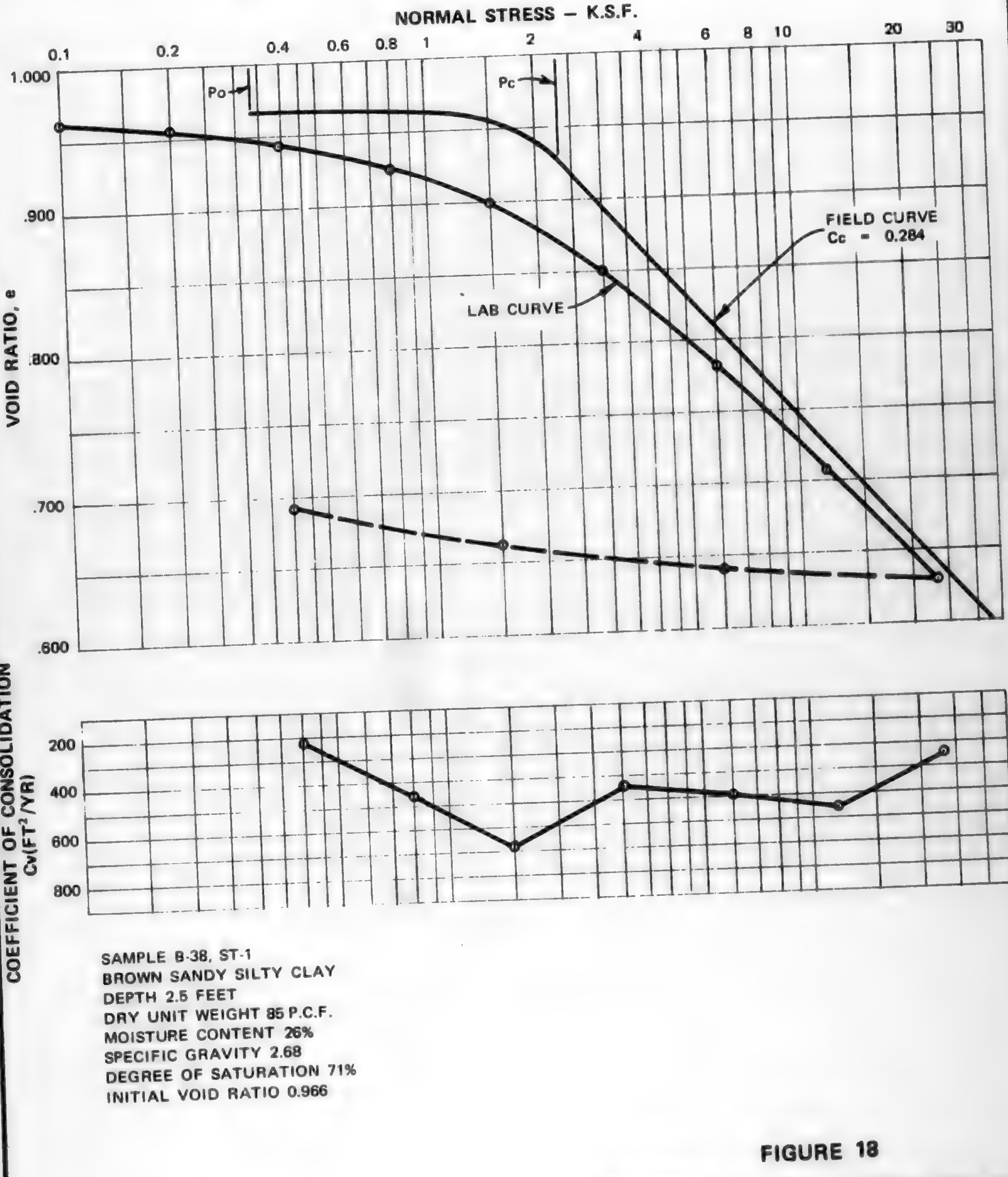
FIGURE 17

SAMPLE B-51, SSL-1
GRAY SILTY CLAY (CLAYSTONE)
DEPTH 195 FEET
DRY UNIT WEIGHT 102 P.C.F.
MOISTURE CONTENT 26%
SPECIFIC GRAVITY 2.70
DEGREE OF SATURATION 100%
INITIAL VOID RATIO 0.647

**SVERDRUP & PARCEL AND ASSOCIATES, INC.**
**FOUNDATION INVESTIGATION**
**I-205 COLUMBIA RIVER BRIDGE**

## CONSOLIDATION TEST
## TROUTDALE FORMATION
## CLAYSTONE

CH2M HILL



SAMPLE B-38, ST-1
BROWN SANDY SILTY CLAY
DEPTH 2.5 FEET
DRY UNIT WEIGHT 85 P.C.F.
MOISTURE CONTENT 26%
SPECIFIC GRAVITY 2.68
DEGREE OF SATURATION 71%
INITIAL VOID RATIO 0.966

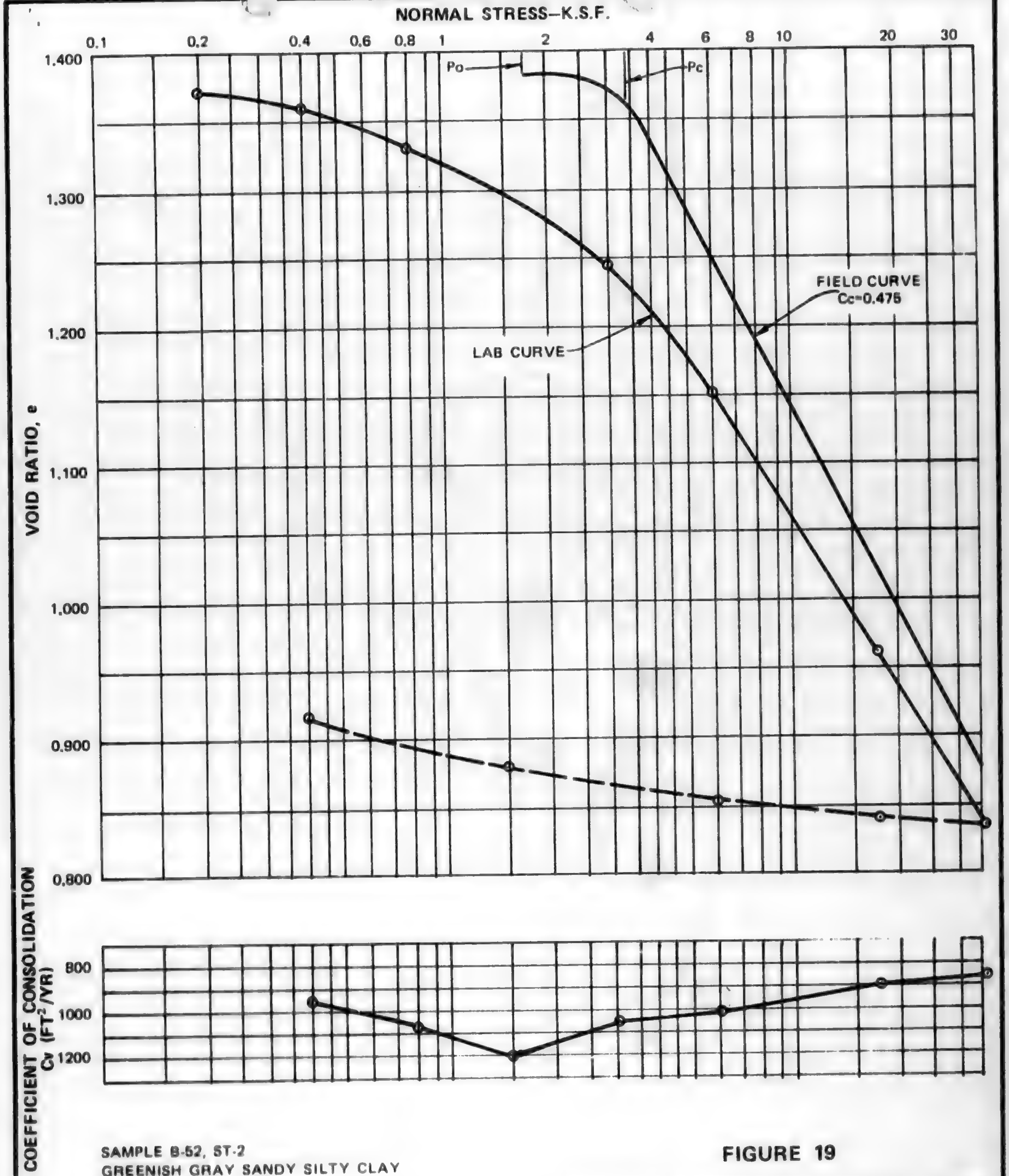
**FIGURE 18**

SVERDRUP & PARCEL AND ASSOCIATES, INC.
FOUNDATION INVESTIGATION
I-205 COLUMBIA RIVER BRIDGE

**CONSOLIDATION TEST**
**GOVERNMENT ISLAND**

CH2M HILL

P6163.9



SAMPLE B-52, ST-2
GREENISH GRAY SANDY SILTY CLAY
DEPTH 20 FEET
DRY UNIT WEIGHT 70 P.C.F.
MOISTURE CONTENT 52%
SPECIFIC GRAVITY 2.68
DEGREE OF SATURATION 100%
INITIAL VOID RATIO 1.381

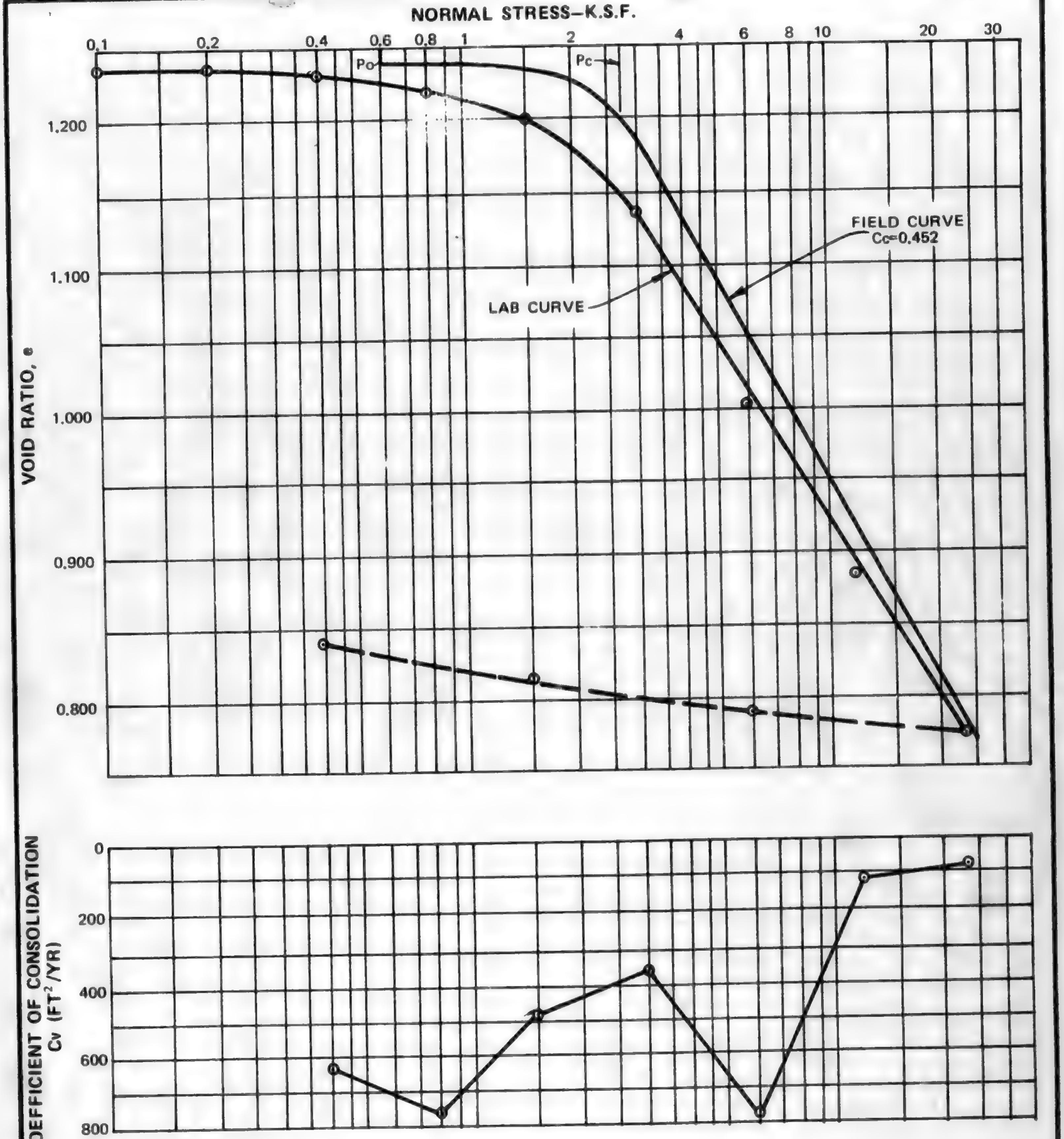
FIGURE 19

SVERDRUP & PARCEL AND ASSOCIATES, INC.
FOUNDATION INVESTIGATION
I-205 COLUMBIA RIVER BRIDGE

CONSOLIDATION TEST
OREGON FLOOD PLAIN

CH2M HILL

P6163.9



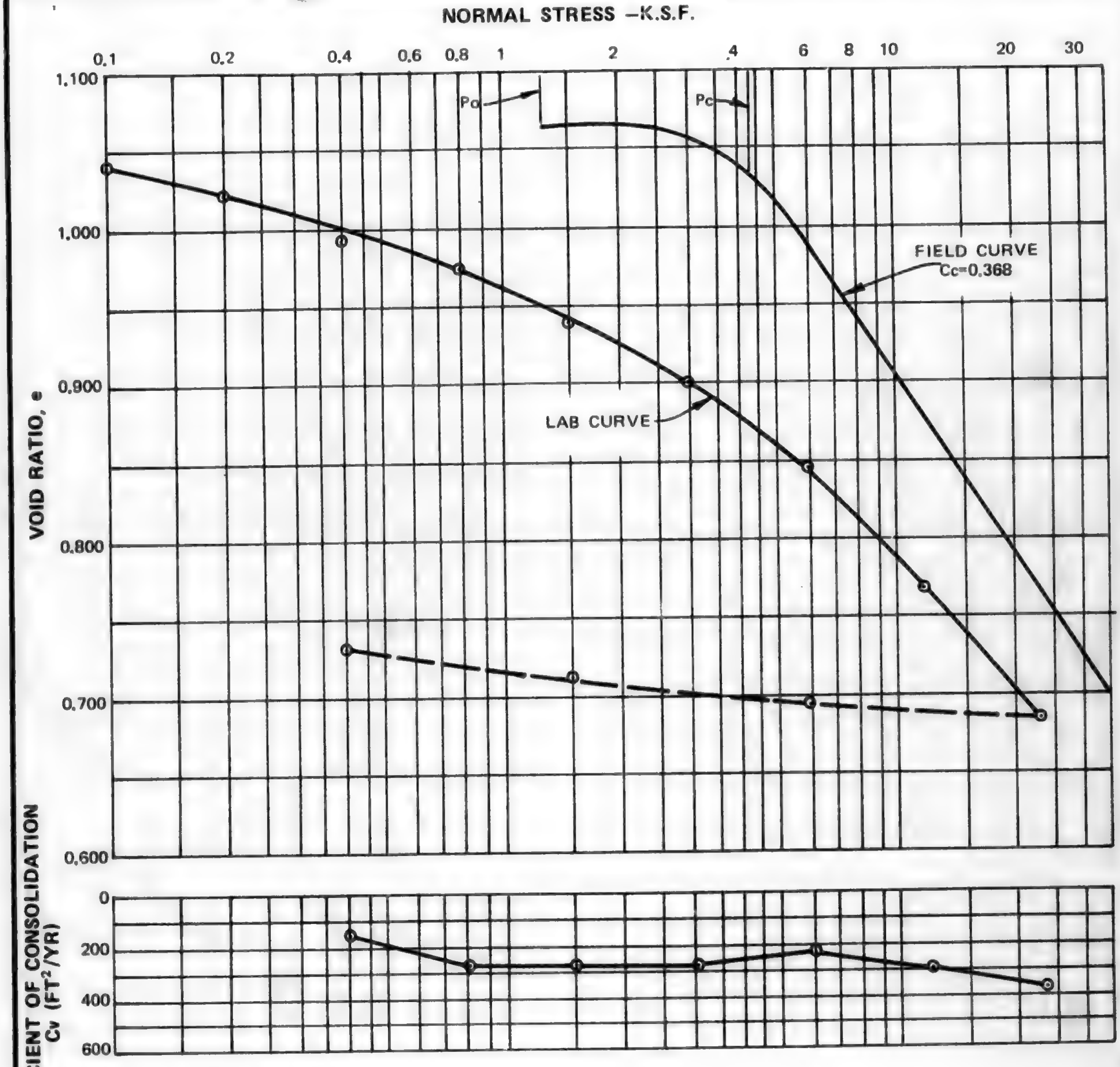
SAMPLE B-53, ST-7
BROWN SANDY CLAYEY SILT
DEPTH 6 FEET
DRY UNIT WEIGHT 76 P.C.F.
MOISTURE CONTENT 36%
SPECIFIC GRAVITY 2.72
DEGREE OF SATURATION 77%
INITIAL VOID RATIO 1.232

FIGURE 20

SVERDRUP & PARCEL AND ASSOCIATES, INC.
FOUNDATION INVESTIGATION
I-205 COLUMBIA RIVER BRIDGE

CONSOLIDATION TEST
OREGON FLOOD PLAIN

CH2M
HILL

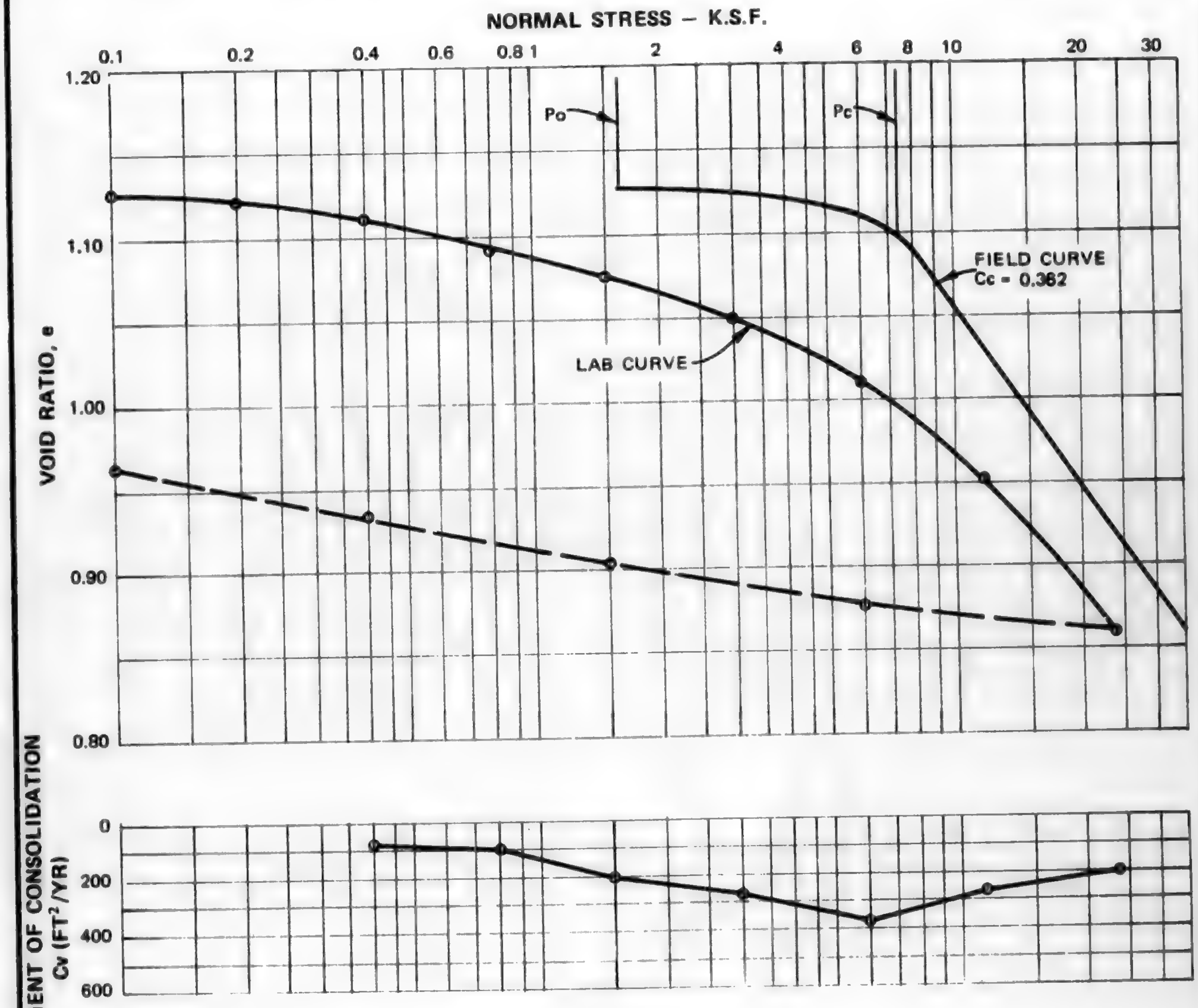


SAMPLE B-53, ST-8
BROWN FINE SANDY SILT
DEPTH 10 FEET
DRY UNIT WEIGHT 82 P.C.F.
MOISTURE CONTENT 39%
SPECIFIC GRAVITY 2.70
DEGREE OF SATURATION 97%
INITIAL VOID RATIO 1.055

FIGURE 21

SVERDRUP & PARCEL AND ASSOCIATES, INC.
FOUNDATION INVESTIGATION
I-205 COLUMBIA RIVER BRIDGE

CONSOLIDATION TEST
OREGON FLOOD PLAIN



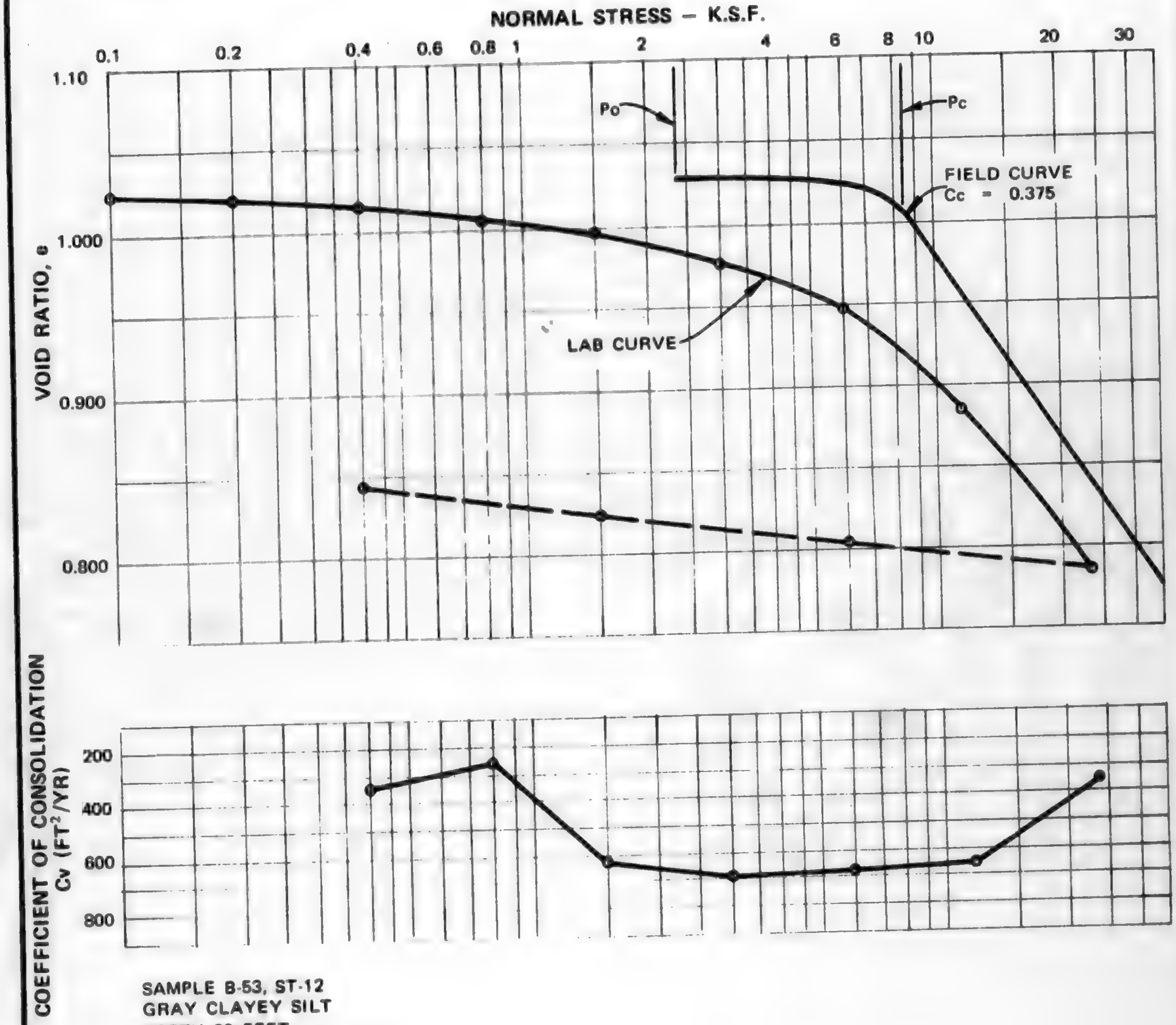
SAMPLE B-53, ST-9
BROWNISH GRAY SANDY SILTY CLAY
DEPTH 15 FEET
DRY UNIT WEIGHT 80 P.C.F.
MOISTURE CONTENT 39%
SPECIFIC GRAVITY 2.72
DEGREE OF SATURATION 92%
INITIAL VOID RATIO 1.128

FIGURE 22

SVERDRUP & PARCEL AND ASSOCIATES, INC.
FOUNDATION INVESTIGATION
I-205 COLUMBIA RIVER BRIDGE

CONSOLIDATION TEST
OREGON FLOOD PLAIN

CH2M HILL



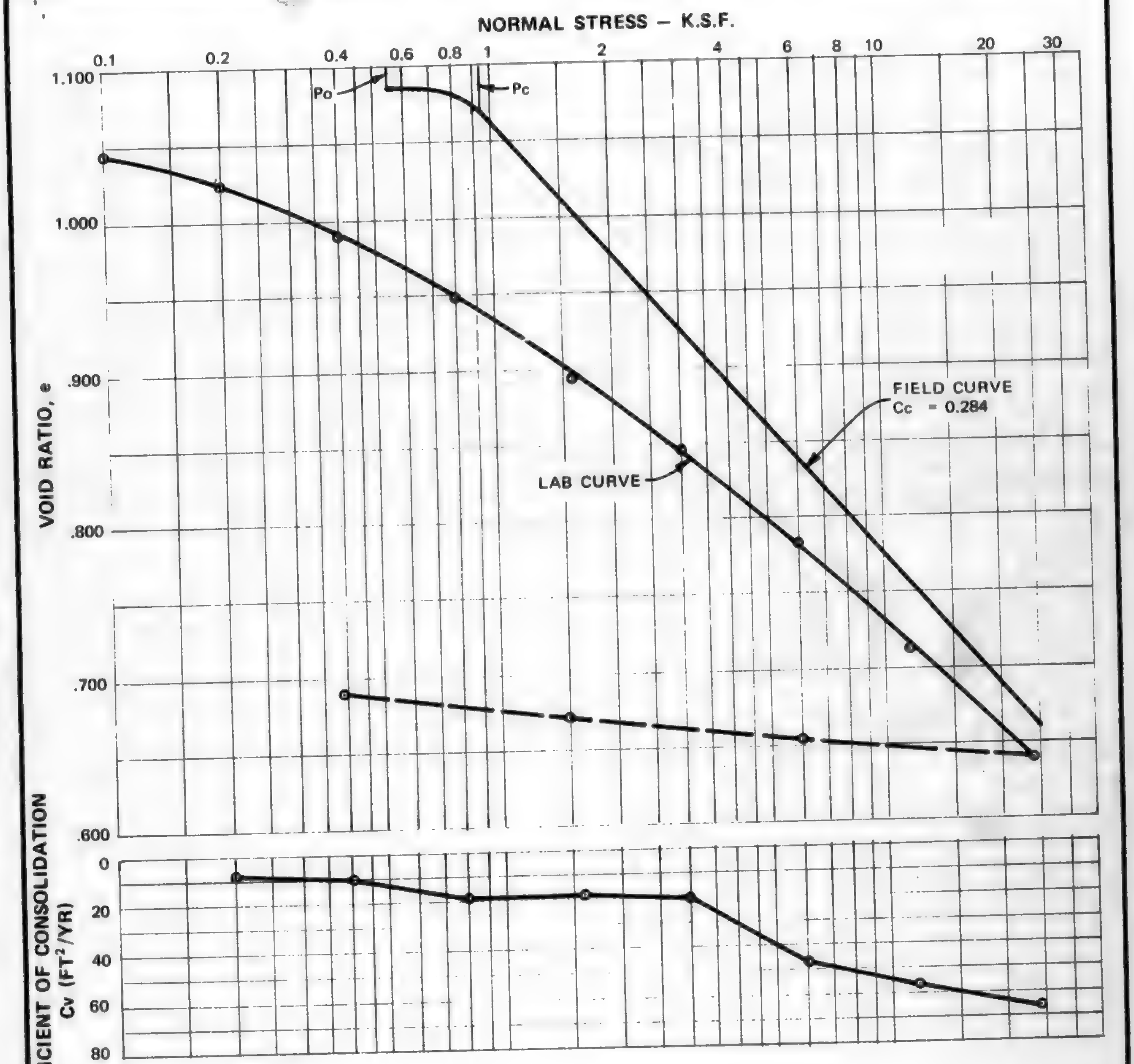
SAMPLE B-53, ST-12
GRAY CLAYEY SILT
DEPTH 30 FEET
DRY UNIT WEIGHT 83 P.C.F.
MOISTURE CONTENT 38%
SPECIFIC GRAVITY 2.68
DEGREE OF SATURATION 100%
INITIAL VOID RATIO 1.0252

FIGURE 23

SVERDRUP & PARCEL AND ASSOCIATES, INC.
FOUNDATION INVESTIGATION
I-205 COLUMBIA RIVER BRIDGE

CONSOLIDATION TEST
OREGON FLOOD PLAIN

CH2M HILL



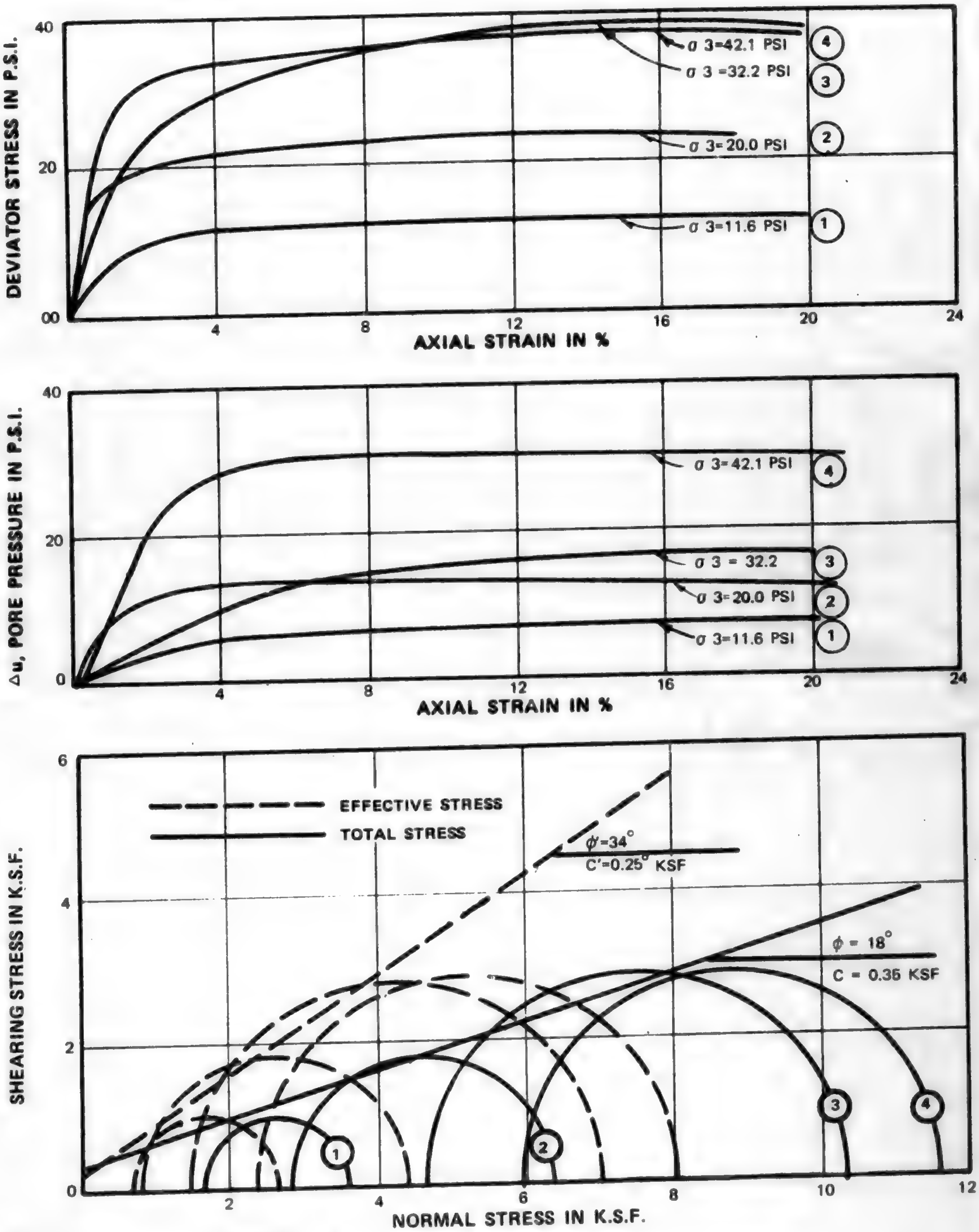
SAMPLE B-54, ST-1
BROWN SLIGHTLY SANDY SILTY CLAY
DEPTH 12 FEET
DRY UNIT WEIGHT 80 P.C.F.
MOISTURE CONTENT 41%
SPECIFIC GRAVITY 2.68
DEGREE OF SATURATION 100%
INITIAL VOID RATIO 1.089

FIGURE 24

SVERDRUP & PARCEL AND ASSOCIATES, INC.
FOUNDATION INVESTIGATION
I-205 COLUMBIA RIVER BRIDGE

**CONSOLIDATION TEST**
**OREGON FLOOD PLAIN**

CH2M HILL



**CIRCLE 2, 4**

SAMPLE B-52, ST-2
GREENISH GRAY SANDY
SILTY CLAY
DEPTH 20 FEET
DRY UNIT WEIGHT 74 P.C.F.
MOISTURE CONTENT 51%
SAMPLE LENGTH 5.75 IN.
SAMPLE AREA 6.375 IN.$^2$
RATE OF STRAIN 0.028 IN/MIN.
CONSOLIDATION PR. =
CONFINING PR.

**CIRCLE 1, 3**

SAMPLE B-52, ST-1
GREEN SANDY SILTY CLAY
DEPTH 5 FEET
DRY UNIT WEIGHT 72 P.C.F.
MOISTURE CONTENT 48%
SAMPLE LENGTH 2.80 IN., 5.75 IN.
SAMPLE AREA 1.73 IN$^2$, 6.379 IN.$^2$
RATE OF STRAIN 0.028 IN/MIN.
CONSOLIDATION PR =
CONFINING PR.

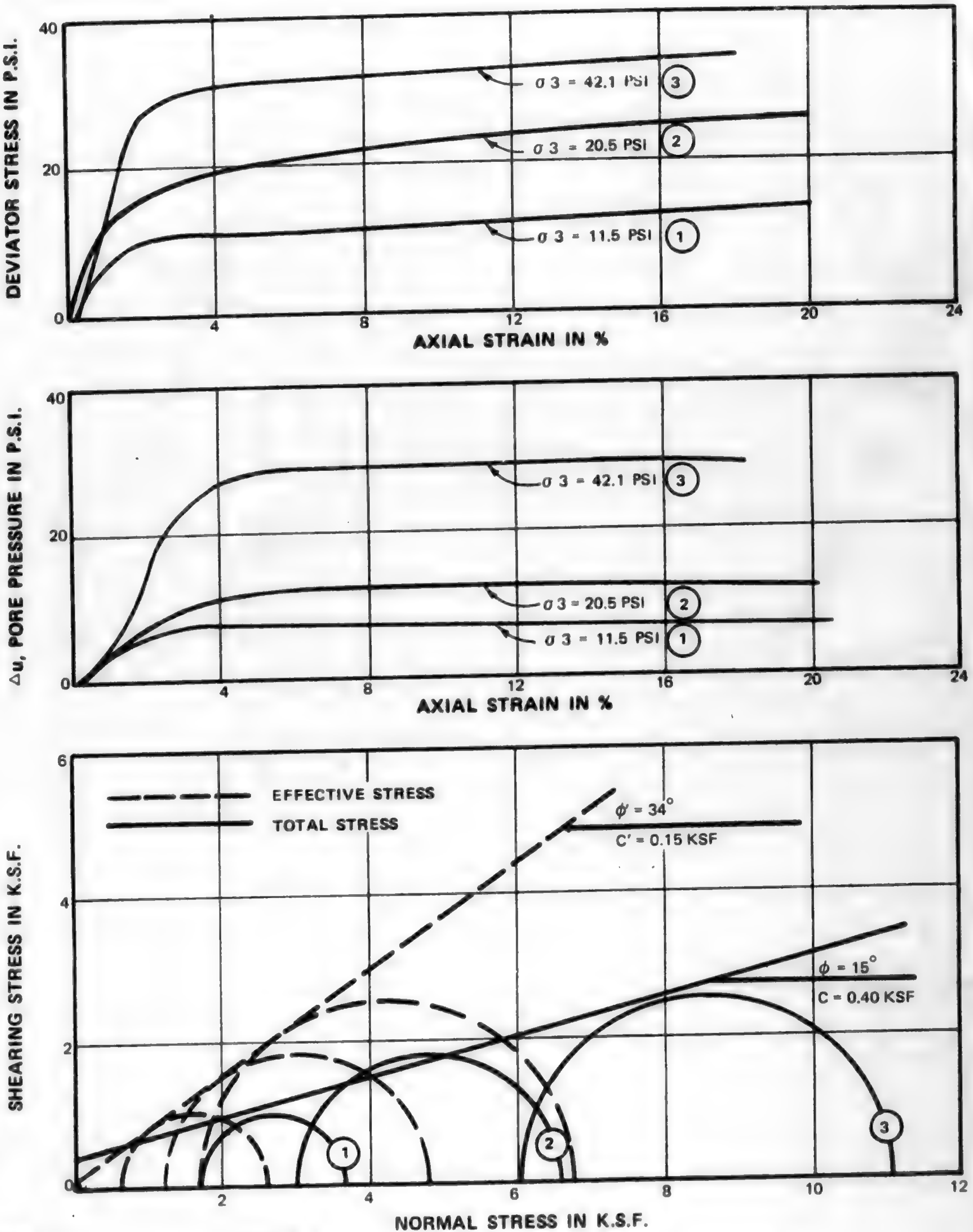
FIGURE 25

SVERDRUP & PARCEL AND ASSOCIATES, INC.
FOUNDATION INVESTIGATION
I-205 COLUMBIA RIVER BRIDGE

TRIAXIAL SHEAR TEST
OREGON FLOOD PLAIN

CH2M HILL

P8163.9



**CIRCLE 1, 3**

SAMPLE B-53, ST-8
BROWN FINE SANDY SILT
DEPTH 10 FEET
DRY UNIT WEIGHT 80 P.C.F
MOISTURE CONTENT 41%
SAMPLE LENGTH 5.75 IN.
SAMPLE AREA 6.379 IN.$^2$
RATE OF STRAIN 0.028 IN/MIN.
CONSOLIDATION PR =
CONFINING PR

**CIRCLE 2**

SAMPLE B-53, ST-9
BROWNISH GRAY SANDY SILTY
CLAY
DEPTH 15 FEET
DRY UNIT WEIGHT 79 P.C.F.
MOISTURE CONTENT 43%
SAMPLE LENGTH 5.75 IN.
SAMPLE AREA 6.379 IN.$^2$
RATE OF STRAIN 0.028 IN/MIN.
CONSOLIDATION PR. =
CONFINING PR.

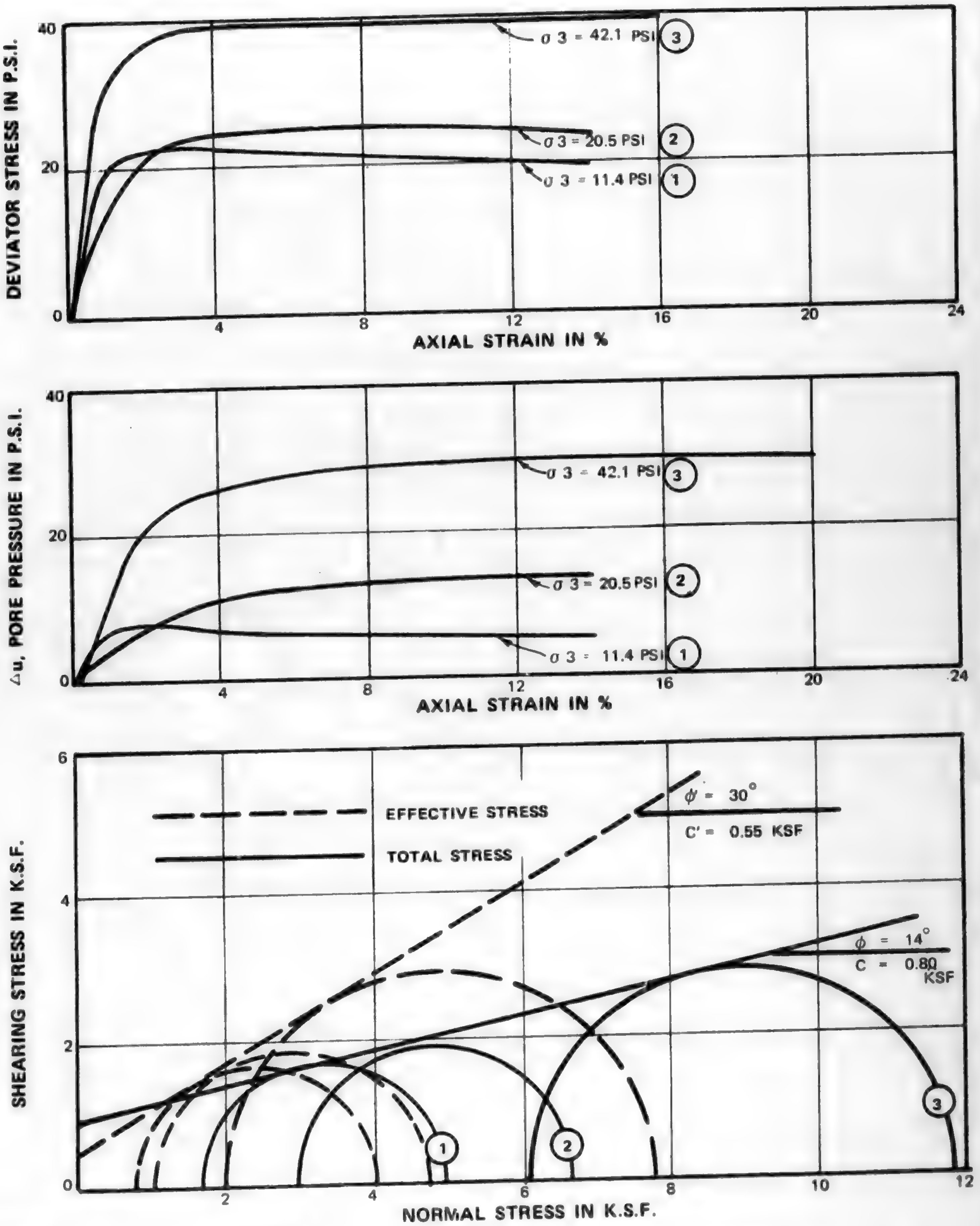
## FIGURE 26

**SVERDRUP & PARCEL AND ASSOCIATES, INC.**
**FOUNDATION INVESTIGATION**
**I-205 COLUMBIA RIVER BRIDGE**

## TRIAXIAL SHEAR TEST
## OREGON FLOOD PLAIN

CH2M HILL

P6163.9



**CIRCLE 1, 3**

SAMPLE B-53, ST-11
BROWNISH GRAY SANDY
SILTY CLAY
DEPTH 25 FEET
DRY UNIT WEIGHT 83 P.C.F.
MOISTURE CONTENT 44%
SAMPLE LENGTH 5.75 IN.
SAMPLE AREA 6.379 IN.$^2$
RATE OF STRAIN 0.028 IN/MIN.
CONSOLIDATION PR. =
CONFINING PR.

**CIRCLE 2**

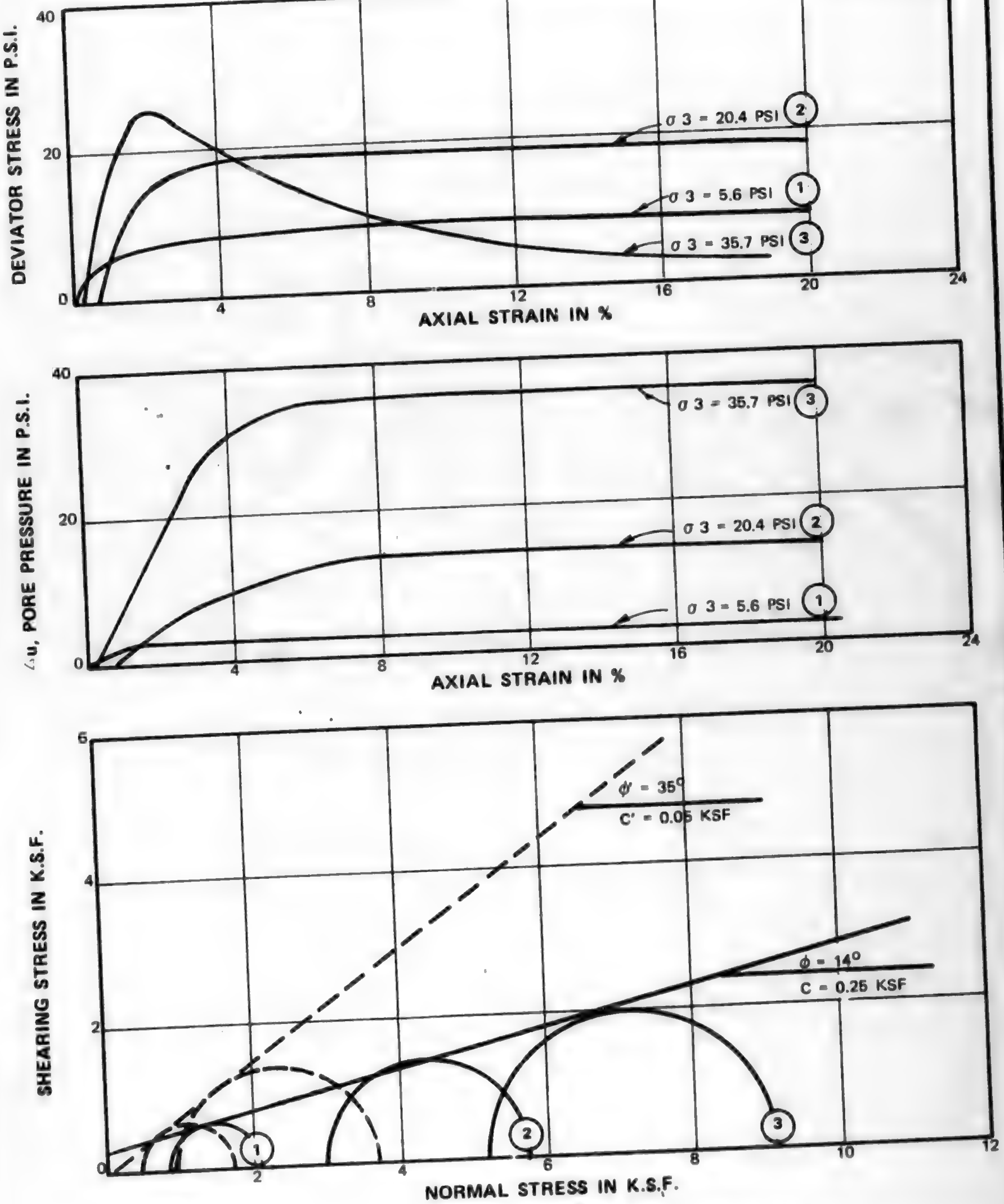
SAMPLE B-53, ST-12
GRAY SILTY CLAY
DEPTH 30 FEET
DRY UNIT WEIGHT 82 P.C.F.
MOISTURE CONTENT 40%
SAMPLE LENGTH 5.75 IN.
SAMPLE AREA 6.379 IN$^2$
RATE OF STRAIN 0.028 IN/MIN.
CONSOLIDATION PR. =
CONFINING PR.

FIGURE 27

SVERDRUP & PARCEL AND ASSOCIATES, INC.
FOUNDATION INVESTIGATION
I-205 COLUMBIA RIVER BRIDGE

TRIAXIAL SHEAR TEST
OREGON FLOOD PLAIN

P6163.9



B-54, ST-1
BROWN SANDY SILT
DEPTH 10 FEET
DRY UNIT WEIGHT 74 P.C.F.
MOISTURE CONTENT 42%
SAMPLE LENGTH 5.75 IN.
SAMPLE AREA 6.379 IN.$^2$
RATE OF STRAIN 0.028 IN/MIN.
CONSOLIDATION PR. = CONFINING PR.

**NOTE:** PORE PRESSURE FOR $\sigma_3$ = 35.7 COULD NOT BE MEASURED. – LEAKAGE IN PORE PRESSURE LINE

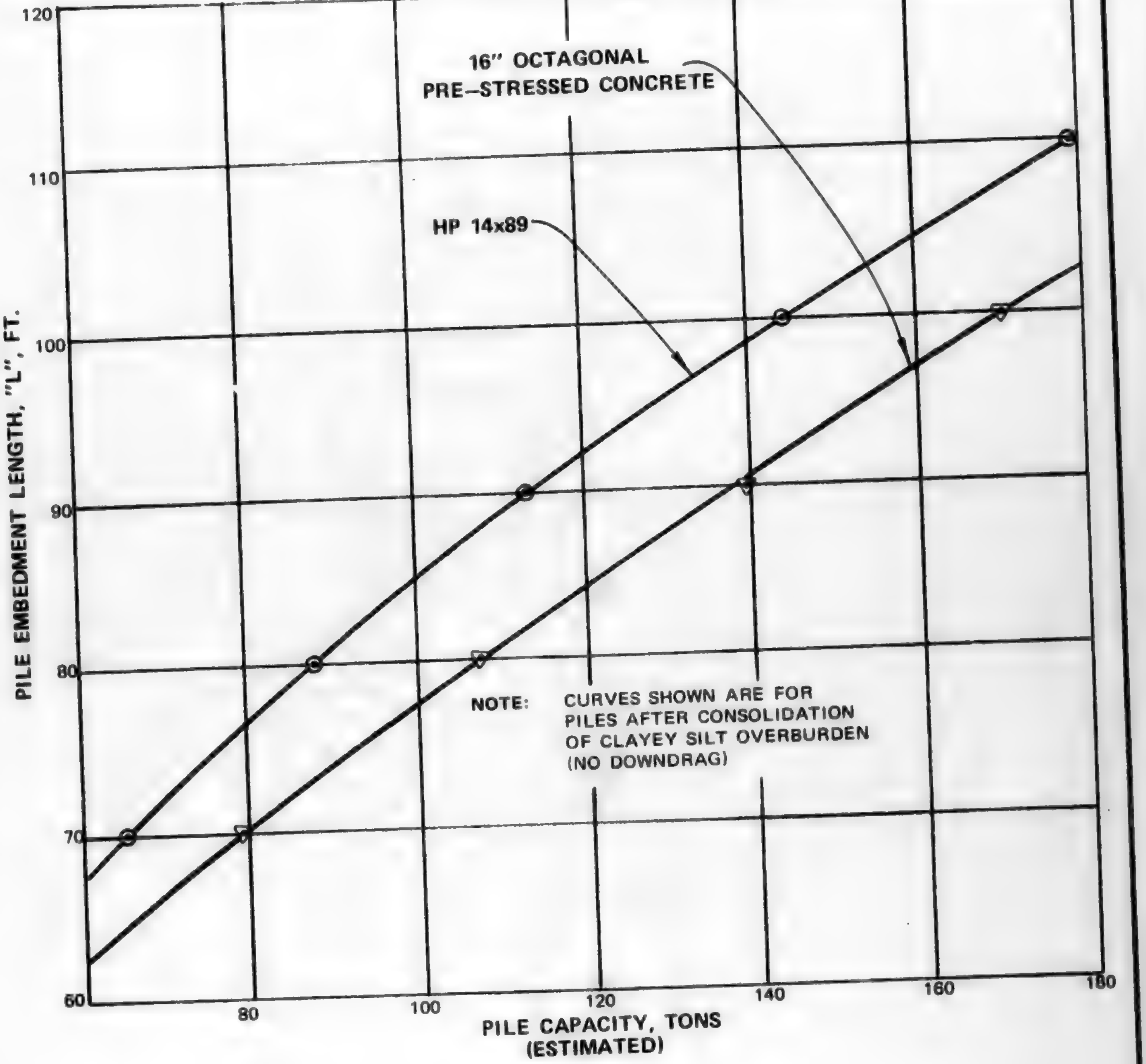
**FIGURE 28**

SVERDRUP & PARCEL AND ASSOCIATES, INC.
FOUNDATION INVESTIGATION
I-205 COLUMBIA RIVER BRIDGE

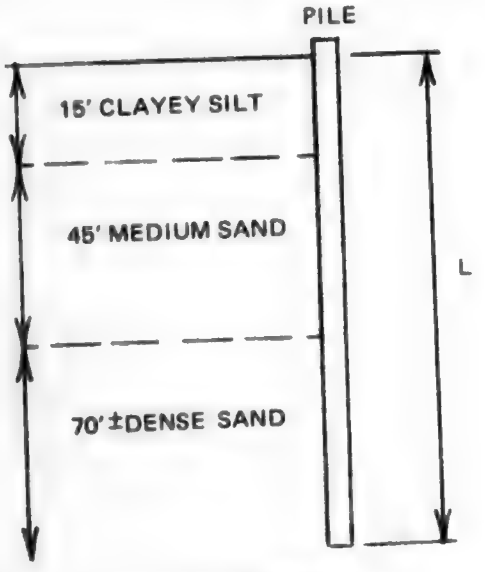
**TRIAXIAL SHEAR TEST**
**OREGON FLOOD PLAIN**

CH2M HILL

P6163.9



NOTE: CURVES SHOWN ARE FOR PILES AFTER CONSOLIDATION OF CLAYEY SILT OVERBURDEN (NO DOWNDRAG)


PILE
15' CLAYEY SILT
45' MEDIUM SAND
70' ±DENSE SAND
L

AVERAGE PROFILE

FIGURE 29

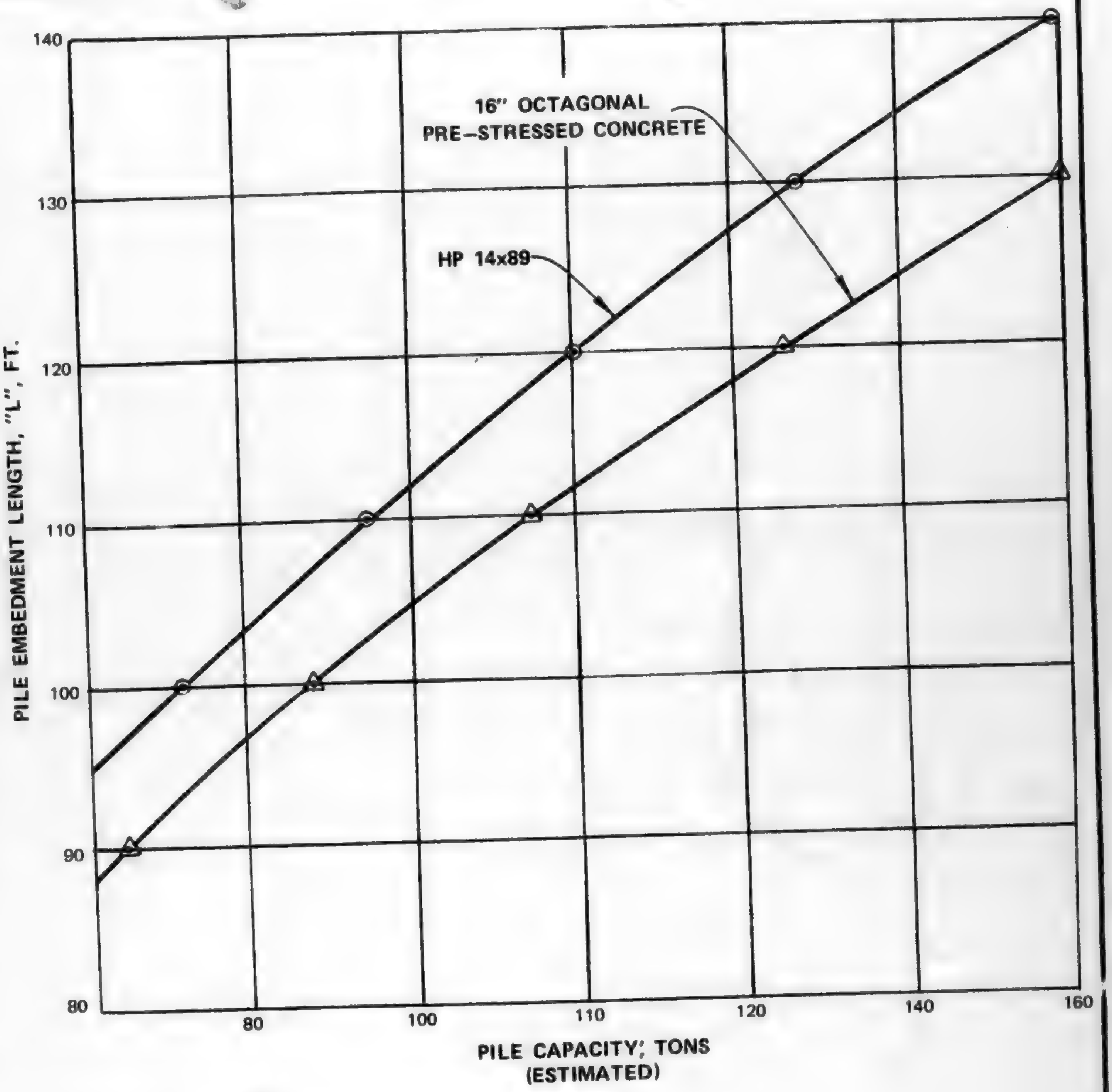
SVERDRUP & PARCEL AND ASSOCIATES, INC.
FOUNDATION INVESTIGATION
I-205 COLUMBIA RIVER BRIDGE

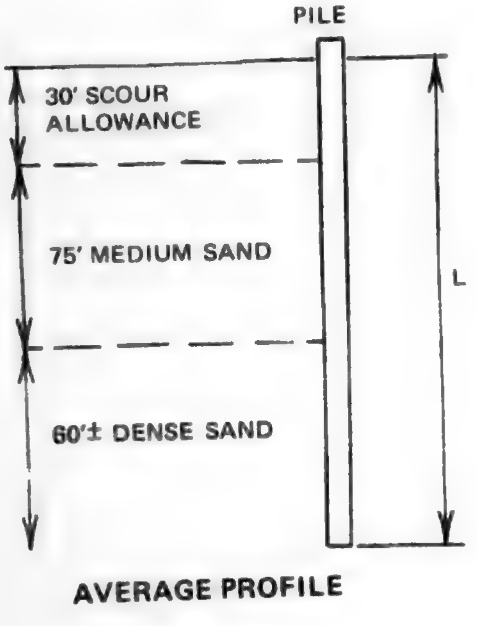
PILE LENGTH VS. CAPACITY
GOVERNMENT ISLAND

CORNELL, HOWLAND, HAYES & MERRYFIELD
CLAIR A. HILL & ASSOCIATES
ENGINEERS · PLANNERS · ECONOMISTS

CH2M HILL

P6163.9




PILE
30' SCOUR
ALLOWANCE
75' MEDIUM SAND
60'± DENSE SAND
L

AVERAGE PROFILE

FIGURE 30

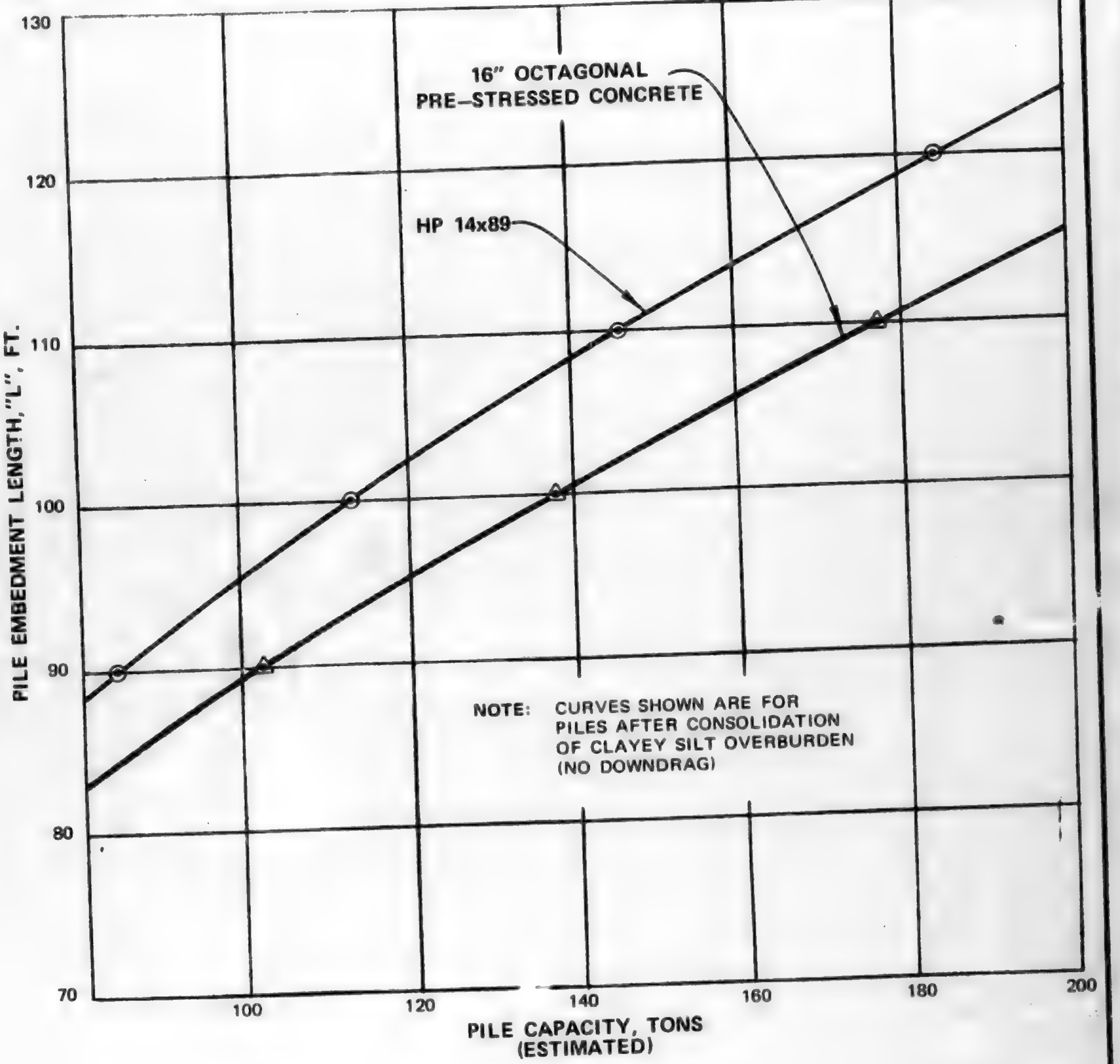
SVERDRUP & PARCEL AND ASSOCIATES, INC.
FOUNDATION INVESTIGATION
I-205 COLUMBIA RIVER BRIDGE

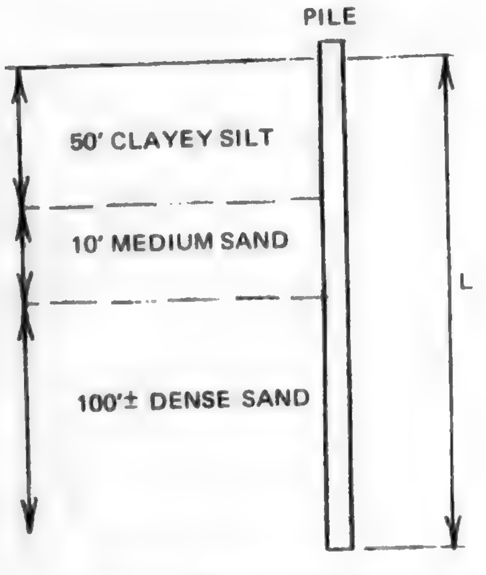
PILE CAPACITY VS. LENGTH
SOUTH CHANNEL COLUMBIA RIVER

CORNELL, HOWLAND, HAYES & MERRYFIELD
CLAIR A. HILL & ASSOCIATES
ENGINEERS · PLANNERS · ECONOMISTS

CH2M HILL

P6163.9




PILE
50' CLAYEY SILT
10' MEDIUM SAND
100'± DENSE SAND
L

AVERAGE PROFILE

## FIGURE 31

SVERDRUP & PARCEL AND ASSOCIATES, INC.
FOUNDATION INVESTIGATION
I-205 COLUMBIA RIVER BRIDGE

## PILE LENGTH VS. CAPACITY
## OREGON FLOOD PLAIN COLUMBIA RIVER

CORNELL, HOWLAND, HAYES & MERRYFIELD
CLAIR A. HILL & ASSOCIATES
ENGINEERS · PLANNERS · ECONOMISTS
CH2M HILL

P6163.9

7115

8

**OREGON STATE HIGHWAY DIVISION**

HIGHWAY BUILDING • SALEM, OREGON • 97310

TOM McCALL
GOVERNOR

F. B. KLABOE
Administrator of Highways

February 1, 1974

NOTED
E. S. HUNTER

RECEIVED
FEB 5 1974
OFFICE OF
ASSISTANT STATE HIGHWAY ENGINEER

Mr. Jack Allen
Sverdrup & Parcel and Associates, Inc.
P. O. Box 369
Bellevue, WA 98004

Dear Mr. Allen:

Columbia River (I-205) Bridge
Bridge No. 9555

Attached is a copy of a letter from the Federal Highway Administration in which they recommend a 36-inch height for the New Jersey type rail on the new bridge. This reinforces our opinion relative to this rail height. The width of this structure increases the potential for impacts greater than 15 degrees where vaulting may occur. We have also experienced light subcompacts and compact cars climbing on top of or traveling over the 32-inch rail. For these reasons we believe that the rail height should be increased to 36 inches.

The Washington approach spans are to be contracted by the State of Washington. The field engineering for these spans will also be done by Washington. Please utilize the Washington Highway Department's standard title block for the detail sheets for that portion of the structure.

Mr. Oakley of this office and a gentleman from our auditing section are tentatively planning to come to Bellevue the week of February 11. The purpose of their visit will be to review your records in justification of the increase in cost for engineering services for the basic 7200-foot structure. We will advise you next week of the exact date of their visit to your office.

Very truly yours,

ORIGINAL SIGNED
WALTER J. HART

Walter J. Hart
Bridge Engineer

WJH:dh
Attachment
cc E. S. Hunter
C. S. Gloyd
R. L. Carroll
H. Schell
R. N. Bothman
Accounting Section

[illegible] 8

**OREGON STATE**
**HIGHWAY DIVISION**

HIGHWAY BUILDING • SALEM, OREGON • 97310

TOM McCALL
GOVERNOR

F. B. KLABOE
Administrator of Highways

January 18, 1974

Mr. Jack Allen
Sverdrup & Parcel and Associates, Inc.
P. O. Box 369
Bellevue, WA 98004

Dear Mr. Allen:

Columbia River (I-205) Bridge
Bridge No. 9555

The Washington Department of Highways has indicated that they want the columns at piers 4 through 7 realigned on a skewed alignment approximately parallel to SR 14. Please proceed with the revision to the design of these spans to place the columns on that alignment.

At this time it would appear appropriate to review both the structural and aesthetic effects of two columns at piers 7 southbound. If the increase in the southbound roadway width due to the taper is not too much greater than the northbound width, single columns for both roadways may be in order. May we have your comments and recommendations on this?

The estimated cost of $5,910 for redesign of spans 3 through 6 due to the realignment of the piers 4 through 7 columns is acceptable. This cost, plus the added cost due to the addition of the bike path and project delays, will be included in a subsequent amendment to the original design contract.

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ASSISTANT STATE HIGHWAY ENGINEER

NOTED
E. S. HUNTER

A DIVISION OF THE DEPARTMENT OF TRANSPORTATION

It will be necessary for Mr. Oakley of our office to review with your staff the status of the completed design at points in time when delays and changes occurred. We anticipate that this review can be undertaken within the next several weeks. We will contact you further when a more definite date is available.

Very truly yours,

ORIGINAL SIGNED
WALTER J. HART

Walter J. Hart
Bridge Engineer

WJH:dh

cc E. S. Hunter
R. N. Bothman
C. S. Gloyd
R. L. Carroll
Glen Green

8905

**OREGON STATE
HIGHWAY DIVISION**

HIGHWAY BUILDING • SALEM, OREGON • 97310

TOM McCALL
GOVERNOR

F. B. KLABOE
Administrator of Highways

January 14, 1974

NOTED
E. S. HUNTER

Mr. R. Jack Allen, P.E.
Sverdrup & Parcel and Associates, Inc.
PO Box 369
Bellevue, Washington 98004

Dear Mr. Allen:

Columbia River (I-205) Bridge
Construction in Dike Area

Initial indications are that the Corps of Engineers will oppose any work affecting the dike at the south end of the structure.

It is suggested that you forward preliminary details of all proposed work in this area so that we can present it to them for study and approval. At the same time you should be prepared to consider alternate plans in the event they will not approve locating a pier in the dike area.

If relocation of this pier is necessary, the Corps has stated they prefer locating the pier on the river side of the dike.

Very truly yours,
ORIGINAL SIGNED
WALTER J. HART
Walter J. Hart
Bridge Engineer

PMO/dh/ag

cc ~~E. S. Hunter~~
C. S. Gloyd
Federal Highway Administration

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JAN 14 1974
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ASSISTANT STATE HIGHWAY ENGINEER

1979 Columbia R. Br. (N. Channel 8905
Superstruc.) I-205
Sverdrup & Parcel (Reports, #2

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Consult

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**OREGON STATE**
**HIGHWAY DIVISION**

HIGHWAY BUILDING • SALEM, OREGON • 97310

TOM McCALL
GOVERNOR

F. B. KLABOE
Administrator of Highways

December 31, 1973

NOTED
E. S. HUNTER

Mr. C. S. Gloyd
Bridge Engineer
Washington Department of Highways
Highway Administration Building
Olympia, WA 98504

Dear Mr. Gloyd:

Column Realignment
Columbia River (I-205) Bridge
Bridge No. 9555

Attached is a copy of a letter from Sverdrup & Parcel in which they indicate a cost of $5,910 plus one month design time to realign the columns of piers 4 through 7. Please review this matter and give us your recommendation. Since the algin-ment of the columns is principally of concern to your department, we will defer to your wishes on the possible revision.

Sverdrup & Parcel also raises a question on the subject of the bike path access ramp on the Washington approach. Your Vancouver office should investigate this matter and give us a recommendation.

Your early reply on these two items will be appreciated in order that the consultant can proceed with his work with a minimum of delay.

Very truly yours,
ORIGINAL SIGNED
WALTER J. HART
Walter J. Hart
Bridge Engineer

WJH:dh
Attachment

cc E. S. Hunter
R. N. Bothman
H. A. Schell /w/ attach.

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JAN 2 1974
OFFICE OF
ASSISTANT STATE HIGHWAY ENGINEER

A DIVISION OF THE DEPARTMENT OF TRANSPORTATION

8115 Consult

**OREGON STATE**
**HIGHWAY DIVISION**

HIGHWAY BUILDING • SALEM, OREGON • 97310

TOM McCALL
GOVERNOR

F. B. KLABOE
Administrator of Highways

December 14, 1973

NOTED
E. S. HUNTER

Mr. R. Jack Allen, P.E.
Sverdrup & Parcel and Associates, Inc.
PO Box 369
Bellevue, Washington 98004

Dear Mr. Allen:

Attached are two prints of the revised profile for the subject structure. The grade line has been raised to provide an additional three feet of clearance at centerline station 39+89.11 P.O.C.

The profile revision was required to provide 139 feet of vertical clearance in Span 12 at the face of the south pier protection as shown on the approved navigational permit. At the time the profile was raised to allow for widening the structure, it was decided to improve the grade line as well. A vertical curve was shifted northerly inadvertently lowering the profile at the point in question.

The new location of the main navigational channel changes the position of vertical clearance Points B, C, and D from where shown on the approved Coast Guard Permit. The clearance of the new Point B is less than that shown for its previous location, but since all clearances of the original points are equal to or greater than shown on the approved permit, it is felt no further change of profile would be required.

Very truly yours,

ORIGINAL SIGNED
WALTER J. HART
Walter J. Hart
Bridge Engineer

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DEC 17 1973
OFFICE OF
ASSISTANT STATE HIGHWAY ENGINEER

PMO/dh/ag
Attachs.
cc E. S. Hunter
~~G. H. Andrews~~ w/attachs. (2)
R. L. Carroll w/attach. (1)
Federal Hwy. Adm. w/attach. (1)

1705

Consult

**OREGON STATE HIGHWAY DIVISION**

HIGHWAY BUILDING • SALEM, OREGON • 97310

TOM McCALL
GOVERNOR

F. B. KLABOE
Administrator of Highways

December 10, 1973

NOTED
E. S. HUNTEF

Mr. R. Jack Allen
Sverdrup & Parcel and Associates, Inc.
P O Box 369
Bellevue, Washington 98004

Dear Mr. Allen:

Columbia River (I-205) Bridge
Bridge 9555
Details, North Access Ramp

We are forwarding for your information and study a copy of the State of Washington's comments concerning the details of the subject ramp.

We would like to add at this time that we can concur with their previously submitted request to place the main bridge columns along the skew rather than normal to centerline only, if this would require no extensive redesign of this portion of the bridge.

Very truly yours,
ORIGINAL SIGNED
WALTER J. HART
Walter J. Hart
Bridge Engineer

PMO/ag
Attach.
cc E. S. Hunter
~~G. H. Andrews~~
FHWA w/attach.
R. N. Bothman

RECEIVED
DEC 11 1973
OFFICE OF
ASSISTANT STATE HIGHWAY ENGINEER

8905 Consult.

December 7, 1973

Mr. George H. Andrews, Director
Washington State Highway Department
Highway Administration Building
Olympia, Washington 98504

Dear Mr. Andrews:

Columbia River (I-205) Bridge
Bridge 9555
Meeting with Consultant

Progress on the design for this structure has reached the point where a meeting with the consultant would be beneficial to the progress of the work. Such a meeting has been tentatively scheduled for Thursday, December 20, 1973, at 9:30 A.M. in Room 120 of the State Highway Building in Salem, Oregon.

Items 1, 2, 4 and 5 of the attached tentative agenda should be of interest to the State of Washington since we anticipate your participation in the costs involved. Participation of you or your representative in this meeting is essential in order that we will all be "looking down the same barrel" on the project. Please advise if the date and time indicated is satisfactory.

Your comments or additions to the rough draft will be appreciated in order that all areas of interest may be included on the final agenda.

Very truly yours,

E. S. Hunter
Assistant State Highway Engineer

Attachment

RWE:ag jf
cc: Sverdrup & Parcel
R. L. Carroll
Federal Highway Administration
bc: A. E. Johnson
W. J. Hart
R. N. Bothman

# COLUMBIA RIVER (I-205) BRIDGE

## Proposed Agenda for Meeting with Sverdrup & Parcel Representatives

1. Estimated Additional Costs and Time Delays

    A. Bike path design
    B. Revision of structure to carry bike path
    C. Required supplemental agreements
    D. Form of agreements

2. "Structure Extension" Alternates

    A. State views
    B. Comments by others
    C. Study report
    D. Future scheduling

3. "Final" Grades and Alignment

    A. North approach
    B. Main spans
    C. Oregon approach

4. Approval of Details to Date

    A. Present status (comments to date)

        1) Bike path
        2) Drainage
        3) Signing
        4) Lighting
        5) Rail configuration

    B. Future schedule and final approval

        1) Bike path
        2) Drainage
        3) Signing
        4) Lighting
        5) Rail configuration

5. Design Time Table

    A. General
    B. Washington Section
    C. Main Span
    D. Extension
    E. Letting Schedule

Proposed Agenda Continued

6. Design Checking
    - A. Submittal by Consultant
    - B. Scheduling
    - C. Checking by Oregon
7. Miscellaneous Items

8905
Consult

FORM E-30

**OREGON STATE HIGHWAY DIVISION**
INTER-DEPARTMENT CORRESPONDENCE
Salem, Oregon

DATE December 7, 1973

TO

Memo to the File

ORIGINAL SIGNED
WALTER J. HART

FROM

Walter J. Hart
Bridge Engineer

NOTED
E. S. HUNTER

SUBJECT Extension Study
Columbia River (I-205) Bridge
Bridge No. 9555

On Thursday, December 6, 1973, a call was received from Jack Allen of Sverdrup & Parcel, with a status report on the extension study for the subject bridge.

Bauer Engineering, Inc., the subconsultant for the hydraulic study, has indicated that a rough draft summary of their findings will not be available until December 14. Bauer's final report will not be available to Sverdrup & Parcel before January 9, 1974 at the earliest.

Sverdrup & Parcel will require a minimum of one month after receiving Bauer's report to draft a final report with recommendations.

WJH:dh

cc E. S. Hunter
R. L. Schroeder
R. N. Bothman
R. L. Carroll
W. M. Foster

E. S. Hunter - The time differential between the release of the EIS in January and the completion of the extension study in March raises some questions as far as the direction in which we should go on this project. I would like to discuss this with you. WJH

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Form FHWA 121 (Rev. 5-73)

Consult

UNITED STATES GOVERNMENT

*Memorandum*

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
Box 300
Salem OR 97308

DATE: December 5, 1973

In reply refer to: 10-35-EC2

SUBJECT: Oregon Project I-205-7(2)303
Columbia River Bridge Section
4th Supplement to S & P Consultant Agreement

FROM : G. L. Green, Division Engineer

TO : Mr. F. B. Klaboe, Administrator & State Highway Engineer
Salem, Oregon

NOTED
A. E. JOHNSON

The 4th Supplement to the consultant agreement with Sverdrup & Parcel and Associates for a feasibility study of alternate designs for the 4,100-ft. southerly extension of the Columbia River Bridge is hereby approved. Tentative authorization to proceed subject to the submittal of a satisfactory agreement was granted during our July 17, 1973 conference with your bridge engineers. This was documented in our August 8 memorandum on this subject. Draft copies of this supplement were reviewed and ruled satisfactory in our October 24 memorandum. This supplement appears to increase the total allowable costs under this consultant agreement to $2,047,140.

G. L. Green

NOTED
E. S. HUNTER

CC Nest
Young
12-10-73

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STATE HWY ENGR

DEC 6 '73

REFER TO
Hunter

FOR

| Info | Inves | R/D | D/R | Sign | Act | File |
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ASSISTANT STATE HIGHWAY ENGINEER

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WASHINGTON STATE
Consult
HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS

Highway Administration Building
Olympia, Washington 98504 (206) 753-6005

Daniel J. Evans - Governor
G.H. Andrews - Director

November 29, 1973

Mr. E. S. Hunter
Assistant State Highway Engineer
Oregon State Highway Division
Highway Building
Salem, Oregon

CS 0606 SR 205
Columbia River Bridge
Environmental Data

Dear Sir:

We have reviewed the preliminary environmental information (hydraulic data) transmitted by your letter of October 23, 1973.

Since the intended use of this material is unspecified, a detailed and critical analysis has not been made. If, however, the report is to be included in an environmental document, we would suggest that care be taken to present the material in a manner that can be easily understood by the general public and all statement of impact be supported by factual information.

On the basis of the Consultant's hydraulic computations, we concur with his conclusions regarding the hydraulic effects of Alternatives 1 and 2 on the environment.

Yours very truly,

G. H. ANDREWS
Director of Highway

C. S. Gloyd
By: C. S. GLOYD
Bridge & Structures Engineer

12-6-73
cc Schroeder
Hart
Byard

GHA:ta
WBH/TLM
cc: H. R. Goff/Russell Albert

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DEC 4 1973
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ASSISTANT STATE HIGHWAY ENGINEER

A. H. Parker Chairman
Bremerton

Harold Walsh
Everett

Baker Ferguson
Walla Walla

Virginia K. Gunby
Seattle

Howard Sorensen
Ellensberg

Harold L. Boulac
secretary

October 23, 1973

Mr. George Andrews, Director
Washington State Highway Department
Highway Administration Building
Olympia, Washington 98504

Dear Mr. Andrews:

Columbia River (I-205) Bridge
Bridge 9556
Extension Study
Environmental Data

Attached is a copy of preliminary environmental information for the subject project as forwarded by the consultant.

Submission of this information at this time is in accord with the agreement under which the consultant is conducting a feasibility study for the bridge extension. The completed feasibility study will not be available until the 21st of December.

Any comments you may have on the attached will be appreciated.

Very truly yours,

E. S. Hunter
Assistant State Highway Engineer

Attachment

cc: R. L. Carroll w/att.
bc: R. Jack Allen, Sverdrup & Parcel
Glen L. Green w/att.
F. B. Klaboe
A. E. Johnson
R. L. Schroeder
W. J. Hart
R. N. Bothman
RWE:ag jf

SVERDRUP & PARCEL AND ASSOCIATES, Inc.
*Consulting Engineers*
505 - 106TH AVENUE N. E.
P. O. BOX 369
BELLEVUE, WASHINGTON 98004

October 16, 1973

Oregon State Highway Division
Highway Building
Salem, Oregon 97310

Attention: Mr. Walter J. Hart
Bridge Engineer

Gentlemen:

Subject: I-205 Columbia River Bridge
Bridge 9555
Extension Study

Submitted herewith are copies of Environmental Impact Data as required by the draft agreement forwarded to us with your letter dated August 6, 1973. These data were prepared by Bauer Engineering, Inc., our subconsultant for Hydraulic Studies, and are numbered the same as in your memo from Gary A. Potter to R. L. Schroeder dated July 16, 1973. Alternatives 1 and 2, referred to in the data, are the extension schemes described in the preliminary hydraulic evaluation forwarded with our letter dated October 12, 1973.

Item 9, Foundation Investigations, will be covered by CH2M in their report on the program of exploratory borings which is currently being conducted. We will furnish navigational clearances, as part of Item 5, after the bridge profile has been established.

Very truly yours,

SVERDRUP & PARCEL AND ASSOCIATES, Inc.

Jack Allen

R. Jack Allen, P.E.
Project Engineer

Enclosures

cc: Robert N. Bothman

BAUER ENGINEERING, INC.
CONSULTING ENGINEERS LAND AND WATER RESOURCES
20 NORTH WACKER DRIVE
CHICAGO, ILLINOIS 60606

TELEPHONE
(312) 641-0210

CABLE ADDRESS
"BAUERENG CHICAGO"

October 12, 1973

ENCLOSURE TO
LETTER DATED
OCT 1 6 1973
FROM
SVERDRUP & PARCEL
AND ASSOCIATES INC

Mr. R. Jack Allen, P. E.
Sverdrup & Parcel and Associates, Inc.
505 - 106th Avenue, N.E.
P. O. Box 369
Bellevue, Washington 98004

SUBJECT: I-205 Columbia River Bridge
Hydraulic Studies
Our Project No. 1276.001

Dear Mr. Allen:

This is in response to your request for preliminary information regarding environmental assessment of those parameters to be studied under our contract (Items 1 thru 8 and 10 thru 14).

Attached is our preliminary evaluation of these parameters, numbered in the same order as in Mr. Gary A. Potter's memorandum dated July 16, 1973. These data will be covered much more thoroughly in our final report.

Very truly yours,

Clint J. Keifer

Clint J. Keifer
President

CJK/pr

Attachment

RECEIVED
OCT 1 6 1973
SVERDRUP & PARCEL
& ASSOCIATES INC.

# PRELIMINARY STATEMENT OF THE HYDRAULIC IMPACT OF THE PROPOSED BRIDGE TO THE COLUMBIA RIVER

## 1.* Flooding Cross Current Changes

The cross current on Government Island is not significant under present conditions because the stage difference between the South Channel and the North Channel under a 100-year flood is on the order of 0.1 feet.

Under Alternatives 1 and 2, the cross current on Government Island would not have any noticeable change because the increases in the difference of stage between the South Channel and the North Channel are on the order of 0.03 feet for Alternative 1 and 0.04 feet for Alternative 2 under a 100-year flood, as shown in Table A.

## 2. Backwater Effects on the Floodplain

The back up of the flood stage due to the construction of embankment and bridge piers at the vicinity of the proposed bridge is insignificant for a 100-year flood, as shown in Table A. Therefore, the backwater effect on the floodplain is insignificant.

## 3. & 4. Scouring and Sedimentation Effect

### a. Upstream Reach

The flow velocity in the upstream reach of the proposed bridge in the case of Alternative 1 would be slightly decreased right after the construction of the bridge, and thus the scouring potential in this reach would be lessened.

---

*Item numbers used in the following subject on the environmental impact statements correspond to the item numbers used in the memorandum of July 16, 1973 from Gary A. Petter to R. L. Schroeder of Oregon State Highway Division.

However, this change in scouring potential tends to break the state of equilibrium of the sediment transportation within the reach of study. The riverbed in the upstream reach of the proposed bridge would then tend to deposit sediment until the new equilibrium had been reached. During this period, the scouring potential would gradually increase until the same level of scouring potential exists as under the present conditions.

The maximum decrease in the rate of sediment transportation expected to occur right after the construction is on the order of 1.4%. After a certain period of natural adjustment, the sediment transport action would gradually increase to the existing capacity. Pragmatically, there would be no significant riverbed changes after the Alternative 1 construction. The change in the river bed is estimated to be as small as 0.05 feet higher than the existing bed elevation in the upstream reach.

The flow velocity in the upstream reach of the proposed bridge in the case of Alternative 2 would be decreased slightly more than that expected in Alternative 1 due to the dredging of river material in conjunction with embankment construction. The same natural process as described in the case of Alternative 1 construction would be expected for Alternative 2. The maximum decreases in the rate of sediment transportation is estimated to be 4.6% of the existing capacity right after the bridge construction. The riverbed would continue to deposit sediments after the level of the existing stream bed is reached until the equilibrium state is achieved. The change in the riverbed elevation from that of the existing bed would be approximately on the same order as that expected in the Alternative 1 construction. Due to the fact that the sediment transported from upstream is to fill the borrow pit in the bottom of the river before it would start to adjust the riverbed to the new equilibrium state, the time required for Alternative 2 construction to reach its new equilibrium state would be much longer than that to be expected in the Alternative 1 construction.

b. Downstream Reach

After the construction of the proposed bridge for Alternative 1, the flow velocity or the scouring potential would remain at the same level as that experienced under present conditions. However, the bottom of the river bed would be scoured because the rate of sediment transportation would have decreased from the upstream reach of the proposed bridge. This scouring action would start from near the downstream side of the proposed bridge and with time the region of scouring would be extended to further downstream. The scouring of the downstream reach would continue until the rate of sediment transportation both from the upstream reach and from that leaving the downstream reach arrive at its transcient equilibrium state. With the passage of time, the deposition of sand material would occur until the true equilibrium of the sediment transportation is achieved. When this new equilibrium is achieved, the river bed elevation in the downstream reach would pragmatically attain the same level as that of the existing channel. Since parts of the embankment material in Alternative 2 would be dredged from the downstream reach, the deposition of bed material would start right after the construction and would continue until the equilibrium state is reached. When the equilibrium state has been reached, the river bed elevation would pragmatically reach the level same as that of the existing channel.

### c. Immediately Downstream of the Proposed Bridge

The reach immediately downstream of the proposed bridge is expected to have diverged flow which may increase the scouring potential to the shoreline. This increase in scouring potential may be mitigated by constructing dikes perpendicular to the shoreline to deflect the flow from the shoreline toward the centerline of the river.

## 6. Velocities After Construction

There would be no significant change in the flow velocity due to the Alternative 1 construction, since there are no significant changes in the cross sectional area, as was stated previously. On the other hand, there would be some 4.4% change in low flow area which compares with 1.2% (=2,240/182,270) under 100-year flood for Alternative 2 construction. Consequently, on the order of 0.05 ft/sec of velocity change may be expected under 100-year flood which is not significant.

The average velocity under the proposed bridge would have a constriction ratio of 79% $\left(= \frac{68{,}760 - 12{,}470}{71{,}200}\right)$ and thus the velocity would be 4.1 ft/sec in the South Channel. On the other hand, the constriction ratio for the North Channel would be 85% $\left(= \frac{147{,}560 - 19{,}040}{150{,}659}\right)$ and thus, the velocity under the bridge would be 3.7 ft/sec under 100-year flood.

### 5. Navigational Effect (hydraulic aspect only)

As it was stated in the backwater effect and in the riverbed changes, the water stage and the riverbed would not have significant changes. The depth of water in the upstream reach and in the downstream reach would not be less than that of the existing channel at the same discharge. The velocity between piers is estimated to be no more than 4.0 feet/sec. in the North channel under Alternatives 1 and 2 construction and under 100-yr flood flow. Therefore, the impact to the navigation would not be significant due to the construction of the proposed bridge.

### 7. Bonneville "Re-Regulation" Effect

The flood flow in the reach of study is regulated by Lake Celilo near the Dalles. The flow from local streams downstream of Lake Celilo is limited in amount during the period of high flow from Lake Celilo. There is a power station located near Bonneville and approximately 30 miles upstream of the reach of study. The station has a maximum capacity of 140,000 cfs; the minimum output recorded since the implementation of the power house is 90,000 cfs. Thus, the maximum likely fluctuation flow due to the power station "Re-Regulation" is 50,000 cfs. The fluctuation is significant during the period of low flow. However, the fluctuation in flow is not significant during the period of high flow which is the main concern of this aspect of the environmental impact.

### 8. Sounding in South Channel

The sounding data along the South Channel are periodically measured by the U. S. Corps of Engineers, Portland District office. The sounding data from 1935 to 1967 are available for this study. According to the table of the dike construction records, a series of pervious dikes were constructed at the entrance of South Channel between the tip of Government Island and McGuire Island in 1939. This could induce the deposition of sand in the South Channel. However, there is no significant change in riverbed configuration between the sounding data obtained in 1967 and that obtained in 1935. This is due to the fact that change in division of flow between the South Channel and the North Channel is effective only in the period of low flow and the sediment transportation is not dominant during this period.

## 10. Flow Characteristics at all State as Presently Exist

The flow characteristics for the 2-year, 10-year and 100-year flood have been analyzed. The results of flow velocity, flow profile, and the bed load sediment transportation for the existing river are presented in Exhibit 1. The resistance of the riverbed to the flow varies with the riverbed configuration. During the period of low flow, the bottom of the bed is smooth; the roughness of the sand bed plays the important role in resisting the flow. When the flow is in the region between 300,000 cfs and 700,000 cfs, ripples and dunes are formed on the riverbed. Under this condition, the form resistance induced by ripples and dunes plays an important role in resisting the flow. The Manning's roughness changes significantly with stage under such riverbed configuration. These changes in Manning's n value for the existing channel are analyzed and the results are shown in Exhibit 2.

## 11. Chemical Changes

There are no significant chemical changes which would be expected due to hydraulic action resulting from the construction of the proposed bridge. The increases in the strength of turbulence in the vicinity of the proposed pier location may cause increasing rates of air entrainment and thus increase the dissolved oxygen level. However, the quantitative impact of the dissolved oxygen would not be significant.

Construction debris such as oil spills, sanitary wastes, beverage containers, etc. can all have a chemical impact on the dissolved oxygen level. Additionally, some chemicals which would be contained in the exhaust gas from automobiles may be deposited into the Columbia River or may be carried away by the stream flow. However, these considerations are beyond the scope of this study.

12. Temperature Changes

The temperature of the flowing water in the study reach may be fairly uniform, both vertically and horizontally. However, if any temperature gradient exists in the vertical direction, the increased strength of turbulence around the bridge pier would strengthen the degree of mixing and thus, the temperature gradient in the vertical direction may be lessen. However, this change in gradient would probably not be noticeable.

13. Pollution Factors During Construction

The construction of the proposed bridge includes the dredging of bed material from the existing riverbed for the construction of the embankment, construction of the piers, and the construction of the super structures. The benthal load, if any, deposited on the bottom of the dredging area may be resuspended by the dredging action and may cause water pollution downstream of the reach. However, no benthal load has been reported associated with soil boring tests. Any possible water pollution caused by the benthal load is unlikely.

14. Turbidity Factor During Construction

As was reported by the boring test conducted by Dames & Moore, the bed material is formed by clean, fine sand, 10% of which is finer than 0.1 mm in diameter. This particle size corresponds to a falling velocity of 0.02 ft/sec and can be settled in a short time whenever the disturbance is removed. It is expected that the visible turbidity plume caused by the construction would not extend more than one mile under normal flow conditions.

* * * *

Exhibit 1 - 1

## Results of Hydraulic Analysis

```
N0NU       17:12  PC-T0R TUES. 25/09/73

    QT= 360000.
    Q = 360000.
    N1=  0.0500
    N2=  0.0370

 STA     A       HW      HE     V1     V2     V     QS1    QS2     QT
   0  131141.  16.55   16.67   0.8    2.8    2.7    0.0   163.8   163.8
  20  131393.  16.64   16.77   1.0    2.9    2.7    0.5   217.6   218.2
  40  132441.  16.74   16.87   1.0    2.9    2.7    0.5   194.9   195.4
  60  128087.  16.84   16.97   1.0    3.0    2.8    0.6   233.7   234.3
  80  132969.  16.96   17.07   0.9    2.7    2.7    0.0   181.2   181.2
 100  139243.  17.06   17.17   0.9    2.7    2.6    0.2   148.1   148.2
 120  139494.  17.14   17.25   0.8    2.7    2.6    0.1   149.1   149.2
 140  153234.  17.24   17.33   0.8    2.4    2.3    0.1    98.7    98.8
 160  144282.  17.30   17.40   0.8    2.6    2.5    0.1   120.1   120.2
 180  129089.  17.35   17.48   1.0    2.9    2.8    0.4   190.7   191.1
 200  120252.  17.43   17.58   1.0    3.1    3.0    0.3   241.1   241.4
 220  113575.  17.53   17.69   1.1    3.2    3.2    0.2   321.6   321.8
 240  123986.  17.68   17.82   1.0    2.9    2.9    0.2   267.2   267.3
 260  119834.  17.81   17.96   1.2    3.0    3.0    0.2   348.8   349.0
 280  127453.  17.97   18.10   1.2    3.0    2.8    1.0   289.1   290.1
```

Notations:

1. QT: Total flow
2. Q: Divided flow
3. N1: Manning's n value in flood plain
4. N2: Manning's n value in Main section
5. STA: Station
6. A: Flow area
7. HW: Water table elevation from mean sea level
8. HE: Energy level from mean sea level.
9. V1: Velocity in flood plain
10. V2: Velocity in main section
11. V Mean Velocity
12. QS1: Rate of bed-load in flood plain
13. QS2: Rate of bed-load in main section
14. QT: Rate of total bed-load

Exhibit 1-2

```
N0NU      16:50  PC-T0R TUES. 25/09/73


     QT= 360000.
     Q =  105000.
     N1=   0.0500
     N2=   0.0370

  STA       A        HW       HE      V1      V2      V     QS1     QS2     QT
  280   127465.   17.97    18.10    1.2     3.0    2.8    1.0   289.0   290.0
  300    44637.   18.13    18.22    1.0     2.5    2.4    0.2    45.3    45.5
  320    43714.   18.24    18.34    1.0     2.5    2.4    0.1    52.2    52.3
  340    55309.   18.33    18.44    1.0     2.0    1.9    0.1    21.2    21.3
  360    44263.   18.46    18.55    0.9     2.4    2.4    0.1    59.5    59.6
  380    44442.   18.60    18.69    1.0     2.4    2.4    0.1    58.3    58.4
  400    43051.   18.73    18.83    1.0     2.6    2.4    0.3    65.4    65.7
  420    50819.   18.87    18.94    0.7     2.2    2.1    0.0    30.6    30.7
  440    53266.   18.96    19.02    0.8     2.0    2.0    0.1    21.2    21.3
  460    46373.   19.03    19.12    0.9     2.3    2.3    0.1    41.9    42.0
  480    50164.   19.15    19.22    0.7     2.2    2.1    0.0    30.9    30.9
  500    47055.   19.24    19.32    0.9     2.3    2.2    0.1    41.6    41.6
  520    47241.   19.35    19.43    0.9     2.2    2.2    0.0    37.3    37.3
  540    50857.   19.46    19.52    1.0     2.1    2.1    0.1    28.7    28.8
  560    51916.   19.54    19.61    0.7     2.1    2.0    0.1    27.4    27.5
  580    51650.   19.62    19.71    0.9     2.4    2.0    0.4    38.9    39.3
```

```
N0NU.     16:45  PC-T0R TUES. 25/09/73


     QT= 360000.
     Q =  255000.
     N1=   0.0500
     N2=   0.0370

  STA       A        HW       HE      V1      V2      V     QS1     QS2     QT
  280   127465.   17.97    18.10    1.2     3.0    2.8    1.0   289.0   290.0
  300    83140.   18.09    18.24    1.5     3.1    3.1    0.2   234.2   234.4
  320    82048.   18.22    18.39    1.3     3.3    3.1    1.2   280.2   281.4
  340    91648.   18.40    18.53    0.9     2.9    2.8    0.1   181.9   182.0
  360   104177.   18.55    18.64    0.9     2.5    2.4    0.1   116.0   116.1
  380    90758.   18.61    18.76    0.8     3.1    2.8    0.3   195.2   195.5
  400    92294.   18.73    18.87    0.7     3.0    2.8    0.2   173.5   173.6
  420    85329.   18.83    18.99    0.8     3.3    3.0    0.4   260.0   260.4
  440    81454.   18.96    19.12    1.0     3.2    3.1    0.2   208.2   208.4
  460    85696.   19.06    19.22    0.8     3.3    3.0    0.2   182.6   182.8
  480   107328.   19.20    19.32    1.1     3.0    2.4    2.1   120.4   122.6
  500    82698.   19.25    19.42    0.5     3.4    3.1    0.1   245.0   245.1
  520    84224.   19.39    19.54    0.6     3.2    3.0    0.0   189.7   189.7
  540    82504.   19.50    19.65    1.1     3.1    3.1    0.1   193.4   193.5
  560    89798.   19.63    19.76    0.8     2.9    2.8    0.0   144.2   144.3
  580    84011.   19.71    19.88    1.0     3.3    3.0    0.8   260.8   261.6
```

Exhibit 1 - 3

## Results of Hydraulic Analysis

```
NØNU      17:06  PC-TØR TUES. 25/09/73

   QT= 510000.
   Q = 510000.
   N1=  0.0500
   N2=  0.0350

 STA      A        HW      HE      V1     V2     V     QS1    QS2     QT
   0   151029.   21.45   21.63    0.8    3.5    3.4    0.1   443.6   443.7
  20   156025.   21.56   21.74    1.3    3.5    3.3    2.0   511.6   513.6
  40   156008.   21.67   21.85    1.2    3.5    3.3    1.6   483.9   485.5
  60   150706.   21.76   21.97    1.0    3.7    3.4    0.9   602.8   603.7
  80   155058.   21.91   22.08    0.9    3.3    3.3    0.0   441.9   442.0
 100   162496.   22.02   22.18    1.2    3.3    3.1    0.7   371.6   372.2
 120   162266.   22.11   22.27    1.0    3.3    3.1    0.3   378.4   378.8
 140   178645.   22.22   22.36    1.0    3.0    2.9    0.4   250.8   251.2
 160   167886.   22.28   22.44    0.9    3.2    3.0    0.3   318.6   318.9
 180   150381.   22.34   22.53    1.3    3.6    3.4    1.4   497.5   498.9
 200   139208.   22.42   22.64    1.3    3.8    3.7    1.0   634.7   635.8
 220   131608.   22.53   22.77    1.1    4.0    3.9    0.3   825.0   825.3
 240   147242.   22.71   22.90    1.3    3.5    3.5    0.6   603.7   604.3
 260   144061.   22.85   23.04    1.2    3.6    3.5    0.3   728.7   729.0
 280   154557.   23.00   23.19    1.5    3.5    3.3    2.9   599.8   602.7
```

Notations:

1. QT: Total flow
2. Q: Divided flow
3. N1: Manning's n value in flood plain
4. N2: Manning's n value in Main section
5. STA: Station
6. A: Flow area
7. HW: Water table elevation from mean sea level
8. HE: Energy level from mean sea level.
9. V1: Velocity in flood plain
10. V2: Velocity in main section
11. V Mean Velocity
12. QS1: Rate of bed-load in flood plain
13. QS2: Rate of bed-load in main section
14. QT: Rate of total bed-load

Exhibit 1 - 4

```
NØNU        16:54  PC-TØR TUES. 25/09/73


      QT= 510000.
      Q = 160000.
      N1=  0.0500
      N2=  0.0350

     STA      A        HW      HE     V1      V2      V      QS1     QS2     QT
     230  154536.   23.00   23.18    1.5     3.5     3.3     2.9   600.2   603.1
     300   56683.   23.17   23.31    1.1     3.1     2.8     0.5   124.2   124.7
     320   55321.   23.29   23.43    1.0     3.1     2.9     0.3   135.7   136.0
     340   69198.   23.44   23.53    1.1     2.4     2.3     0.3    53.5    53.8
     360   56818.   23.51   23.64    1.0     3.0     2.8     0.2   135.9   136.1
     380   56740.   23.64   23.77    1.1     2.9     2.8     0.3   133.5   133.8
     400   55024.   23.76   23.91    1.0     3.2     2.9     0.5   165.3   165.9
     420   63386.   23.92   24.03    0.7     2.7     2.5     0.1    84.2    84.3
     440   65501.   24.02   24.12    0.8     2.6     2.4     0.1    61.3    61.4
     460   59116.   24.10   24.22    1.1     2.9     2.7     0.3   103.1   103.4
     480   61889.   24.21   24.32    0.8     2.7     2.6     0.1    82.2    82.2
     500   59626.   24.31   24.43    1.1     2.8     2.7     0.3   100.7   101.0
     520   58836.   24.42   24.54    1.1     2.8     2.7     0.1    94.6    94.7
     540   62829.   24.53   24.64    1.1     2.6     2.5     0.2    76.1    76.3
     560   66167.   24.62   24.73    0.7     2.6     2.4     0.1    71.6    71.7
     580   68144.   24.71   24.83    1.0     3.0     2.3     1.1    97.0    98.1



NØNU2       16:40  PC-TØR TUES. 25/09/73


      QT= 510000.
      Q = 350000.
      N1=  0.0500
      N2=  0.0350

     STA      A        HW      HE     V1      V2      V      QS1     QS2     QT
     280  154536.   23.00   23.18    1.5     3.5     3.3     2.9   600.2   603.1
     300   98524.   23.12   23.32    1.5     3.6     3.6     0.3   452.3   452.7
     320   98810.   23.24   23.46    1.4     3.9     3.5     2.6   542.1   544.7
     340  111422.   23.43   23.59    1.0     3.3     3.1     0.4   327.4   327.7
     360  127030.   23.58   23.70    0.9     2.8     2.8     0.1   198.6   198.8
     380  115563.   23.62   23.81    1.0     3.6     3.0     1.2   364.6   365.8
     400  113449.   23.73   23.92    0.8     3.6     3.1     0.4   356.5   357.0
     420  103609.   23.82   24.05    0.8     3.9     3.4     0.7   542.3   543.0
     440   96859.   23.95   24.18    1.0     3.9     3.6     0.4   462.1   462.5
     460  103033.   24.06   24.29    0.9     3.9     3.4     0.7   419.8   420.4
     480  128043.   24.22   24.39    1.2     3.6     2.7     3.5   284.2   287.7
     500  103078.   24.28   24.51    0.9     3.9     3.2     0.9   455.8   456.7
     520  100616.   24.41   24.62    0.5     3.8     3.5     0.1   427.9   428.0
     540   95096.   24.53   24.74    1.1     3.7     3.7     0.2   432.2   432.3
     560  104427.   24.67   24.85    0.8     3.4     3.4     0.0   311.1   311.1
     580   92300.   24.73   24.98    0.7     4.0     3.8     0.1   639.8   639.9
```

Exhibit 1 - 5

## Results of Hydraulic Analysis

```
N0NU      17:02  PC-T0R TUES. 25/09/73

   QT= 690000.
   Q = 690000.
   N1=   0.0500
   N2=   0.0336

 STA      A       HW      HE      V1     V2     V     QS1    QS2     QT
   0   173259.  26.45   26.71    0.9    4.1    4.0    0.3  1025.4  1025.7
  20   181173.  26.58   26.83    1.6    4.1    3.8    5.2  1071.5  1076.7
  40   180061.  26.69   26.95    1.5    4.2    3.8    3.9  1061.2  1065.1
  60   175040.  26.79   27.08    1.0    4.4    3.9    1.4  1343.8  1345.2
  80   183529.  26.97   27.20    0.6    3.9    3.8    0.1   931.8   931.8
 100   187522.  27.08   27.31    0.9    3.9    3.7    0.5   849.2   849.7
 120   178904.  27.17   27.41    0.9    3.9    3.9    0.2   896.9   897.1
 140   207782.  27.32   27.51    1.0    3.5    3.3    0.6   560.0   560.6
 160   193686.  27.38   27.60    1.2    3.8    3.6    1.2   700.7   701.9
 180   172606.  27.42   27.70    1.5    4.3    4.0    3.8  1125.3  1129.1
 200   158985.  27.51   27.82    1.4    4.6    4.3    1.8  1471.9  1473.7
 220   151459.  27.63   27.97    1.0    4.7    4.6    0.5  1834.7  1835.2
 240   170990.  27.85   28.11    1.5    4.1    4.0    1.3  1228.6  1229.9
 260   169684.  27.99   28.25    1.3    4.1    4.1    0.7  1381.5  1382.2
 280   182271.  28.15   28.40    1.7    4.0    3.8    6.5  1145.1  1151.6
```

Notations:

1. QT: Total flow
2. Q: Divided flow
3. N1: Manning's n value in flood plain
4. N2: Manning's n value in Main section
5. STA: Station
6. A: Flow area
7. HW: Water table elevation from mean sea level
8. HE: Energy level from mean sea level.
9. V1: Velocity in flood plain
10. V2: Velocity in main section
11. V Mean Velocity
12. QS1: Rate of bed-load in flood plain
13. QS2: Rate of bed-load in main section
14. QT: Rate of total bed-load

Exhbit 1 - G

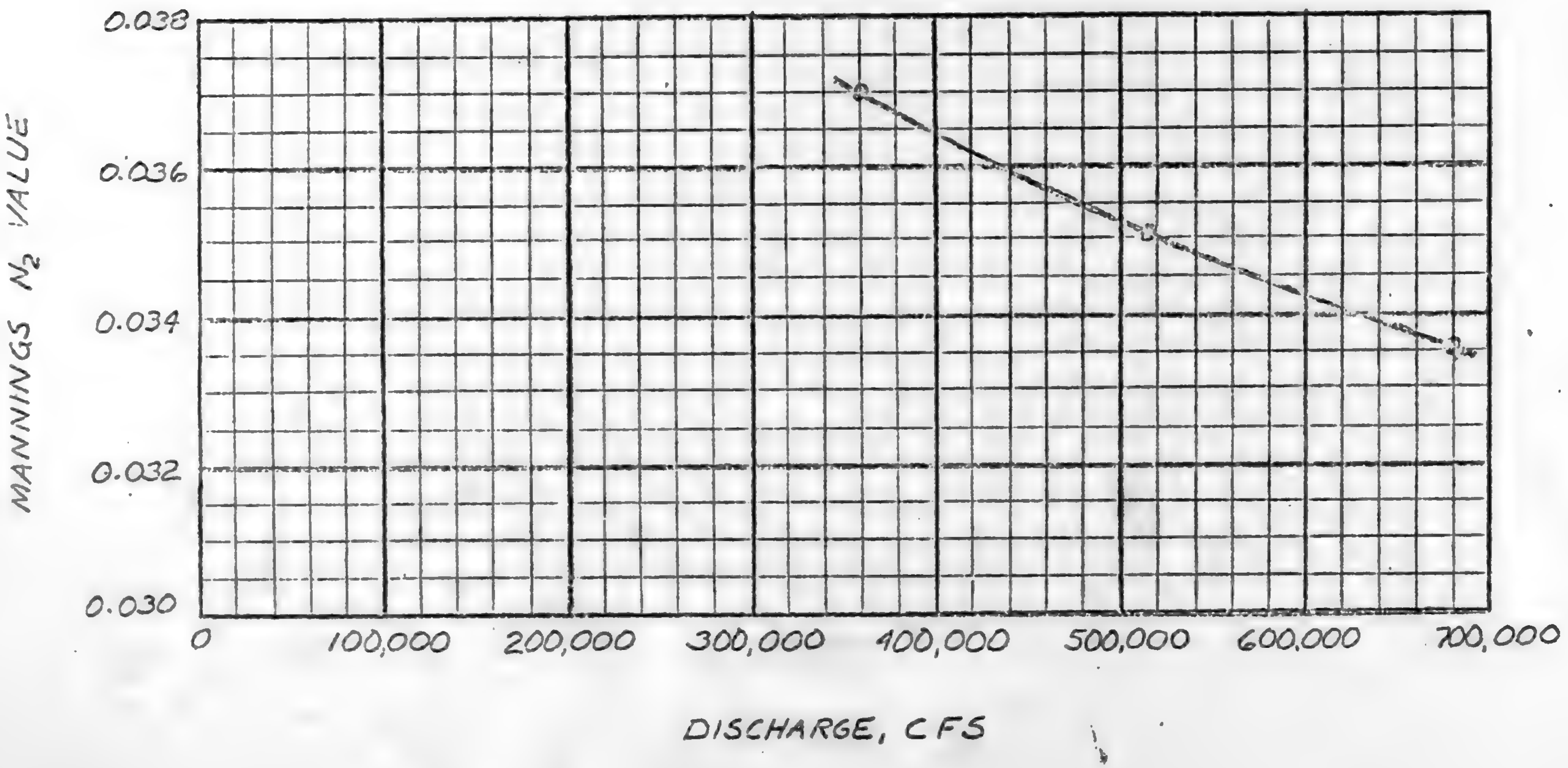
```
NØNU      16:57  PC-TØR TUES. 25/09/73

    QT= 690000.
    Q = 225000.
    N1=   0.0500
    N2=   0.0336

 STA      A       HW      HE     V1    V2     V     QS1     QS2      QT
 280  182253.  28.15   28.39   1.7   4.0   3.8    6.5  1145.7  1152.2
 300   69017.  28.32   28.52   1.1   3.7   3.3    0.9   275.9   276.8
 320   68544.  28.45   28.65   1.0   3.6   3.3    0.6   278.7   279.2
 340   84038.  28.63   28.75   1.3   2.8   2.7    0.7   107.1   107.7
 360   69692.  28.68   28.86   1.0   3.4   3.2    0.3   262.6   262.9
 380   71211.  28.81   28.98   1.4   3.3   3.2    1.0   235.3   236.3
 400   68494.  28.91   29.12   1.2   3.7   3.3    1.3   320.8   322.1
 420   78110.  29.08   29.23   0.8   3.2   2.9    0.3   172.8   173.2
 440   80890.  29.19   29.33   0.8   3.0   2.8    0.2   132.6   132.8
 460   76818.  29.26   29.42   1.2   3.3   2.9    1.0   185.7   186.7
 480   75045.  29.37   29.52   0.9   3.1   3.0    0.2   168.5   168.7
 500   72728.  29.47   29.63   1.3   3.3   3.1    0.7   199.7   200.4
 520   70710.  29.57   29.74   1.3   3.2   3.2    0.2   195.5   195.7
 540   77396.  29.69   29.84   0.9   3.1   2.9    0.2   156.8   157.1
 560   82313.  29.79   29.93   0.9   3.1   2.7    0.4   143.0   143.3
 580   88533.  29.88   30.03   1.2   3.4   2.5    2.8   169.8   172.6
```

```
NØNU2     16:37  PC-TØR TUES. 25/09/73

    QT= 690000.
    Q = 465000.
    N1=   0.0500
    N2=   0.0336

 STA      A       HW      HE     V1    V2     V     QS1     QS2      QT
 280  182253.  28.15   28.39   1.7   4.0   3.8    6.5  1145.7  1152.2
 300  114279.  28.27   28.53   1.5   4.1   4.1    0.5   839.2   839.7
 320  117337.  28.39   28.67   1.7   4.4   4.0    6.0   966.8   972.8
 340  132992.  28.59   28.80   1.2   3.7   3.5    1.1   557.3   558.4
 360  150659.  28.75   28.90   0.9   3.2   3.1    0.2   336.9   337.1
 380  143800.  28.78   29.00   1.3   4.0   3.2    4.2   591.5   595.7
 400  139717.  28.88   29.12   0.9   4.1   3.3    1.4   638.4   639.8
 420  122255.  28.94   29.25   0.9   4.6   3.8    1.3  1058.9  1060.3
 440  123249.  29.09   29.33   0.9   4.4   3.8    1.0   865.8   866.8
 460  127312.  29.21   29.50   1.2   4.5   3.7    3.0   775.9   778.9
 480  154878.  29.38   29.61   1.3   4.1   3.0    6.3   555.9   562.2
 500  137552.  29.46   29.72   1.1   4.4   3.4    3.5   753.3   756.8
 520  126837.  29.56   29.84   0.8   4.3   3.7    0.6   795.6   796.2
 540  114562.  29.67   29.96   0.6   4.4   4.1    0.1   872.9   873.0
 560  122939.  29.84   30.08   0.8   3.9   3.8    0.2   607.9   608.0
 580  110683.  29.89   30.21   1.0   4.6   4.2    0.3  1176.9  1177.8
```

# EXHIBIT 2

## RESULTS OF N VALUES DETERMINATION

$N_1 = 0.005$



## TABLE A BACK-UP FLOOD STAGES FOR EACH ALTERNATIVE

| Alternative | Channel | Flood Return Period | Flood Flow (cfs) | Back-Up Flood Stage (feet) |
|---|---|---|---|---|
| 1 | south | 2 | 105,000 | 0.04 |
| | | 10 | 160,000 | 0.06 |
| | | 100 | 225,000 | 0.08 |
| | north | 2 | 255,000 | 0.03 |
| | | 10 | 350,000 | 0.04 |
| | | 100 | 465,000 | 0.05 |
| 2 | south | 2 | 105,000 | 0.04 |
| | | 10 | 160,000 | 0.07 |
| | | 100 | 225,000 | 0.10 |
| | north | 2 | 255,000 | 0.03 |
| | | 10 | 350,000 | 0.05 |
| | | 100 | 465,000 | 0.06 |
| 3 | south | 2 | 105,000 | 0.09 |
| | | 10 | 160,000 | 0.15 |
| | | 100 | 225,000 | 0.21 |
| | north | 2 | 255,000 | 0.06 |
| | | 10 | 350,000 | 0.09 |
| | | 100 | 465,000 | 0.12 |

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Consult

8

WASHINGTON STATE
HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS

Highway Administration Building
Olympia, Washington 98504 (206) 753-6005

Daniel J. Evans - Governor
G.H. Andrews - Director

November 27, 1973

Mr. E. S. Hunter
Assistant State Highway Engineer
Oregon State Highway Division
Highway Building
Salem, Oregon 97310

NOTED
A. E. JOHNSON

NOTED
E. S. HUNTER

Dear Mr. Hunter:

The review of the revised supplement between Oregon and the consulting firm of Sverdrup & Parcel forwarded by your letter of November 20, 1973, has been completed. It is noted that you have requested the signature of the Director of Highways on this contract document. This is not required under the terms of the agreement between our two states and is not the way we have handled the contract between Oregon and Sverdrup and Parcel to this date. If there is a special reason that you now desire the Director's signature on the document, please advise. If such is the case, the preamble stating the parties to the contract should be changed to reflect all parties. Without such a change we feel the Director's signature to the agreement would be meaningless.

With respect to the administration fee for Sverdrup & Parcel, we concur that the prime consultant will surely incur some cost in the administration of the sub-consultant's work. We feel, however, that such cost could better be handled other than on a lump sum basis. Perhaps a cost plus a fixed fee is the answer. It is not our desire to hold up the execution of this document; therefore, we approve the document as presented by your letter of November 20, 1973.

It is assumed that the effective date of the contract, September 17, 1973, has prior FHWA approval.

Very truly yours,

G. H. ANDREWS
Director of Highways

W. M. Foster.

By: W. M. FOSTER
Assistant Director for
Highway Development

GHA:fmd
WMF

11-30-73
Orig and agreements
to Administrative Services.

RECEIVED
NOV 29 1973
OFFICE OF
ASSISTANT STATE HIGHWAY ENGINEER

A. H. Parker Chairman
Bremerton

Harold Walsh
Everett

Baker Ferguson
Walla Walla

Virginia K. Gunby
Seattle

Howard Sorensen
Ellensberg

Harold L. Boulac
secretary

8905

Form FHWA 121 (Rev. 5-73)

-Consult

8

UNITED STATES GOVERNMENT

# *Memorandum*

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
Box 300
Salem OR 97308

DATE: November 26, 1973

In reply refer to: 10-35-EC2

SUBJECT: Oregon Project I-205-7(2)303
Columbia River Bridge
Supplemental Agreement with Sverdrup & Parcel

FROM : G. L. Green, Division Engineer

TO : Mr. F. B. Klaboe, Administrator & State Highway Engineer
Salem, Oregon

We have reviewed the revised supplemental agreement with Sverdrup & Parcel and Associates for the engineering services for the test pile and plate test program for the subject project as submitted with Mr. Hunter's November 16 letter and find it substantially the same as that reviewed previously. Our October 23 comments still apply.

G. L. Green

RECEIVED
STATE HWY ENGR
NOV 28 '73
REFER TO
Hunter
FOR

| Info | Inves | R/D | D/R | Sign | Act | File |
|---|---|---|---|---|---|---|
| | | | | | ✓ | |

0431

11-29-73
Copy to Hart

NOTED
E. S. HUNTER

Walt.
anything else to do?
ESH

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NOV 29 1973
OFFICE OF
ASSISTANT STATE HIGHWAY ENGINEER

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8

5G

11-21-73

November 23, 1973

Sverdrup and Parcel and Associates, Inc.
P.O. Box 369
Bellevue, Washington 98004

MISC. CONTRACTS and
AGREEMENTS No. 3835

Gentlemen:

Attached for your records is a fully executed copy of a supplemental agreement covering a study of different alternates available for a southerly extension of the main Columbia River Bridge (I-205).

We have retained a fully executed copy of this agreement for the Commission's files.

Very truly yours,

C. W. Head, Manager
ADMINISTRATIVE SERVICES

fkn
Att.

cc Walt Hart

**OREGON STATE**
**HIGHWAY DIVISION**

HIGHWAY BUILDING • SALEM, OREGON • 97310

DATE November 20, 1973

TO Oregon State ~~Highway~~ Transportation Commission

FROM F. B. Klaboe
State Highway Engineer

SUBJECT Supplemental Agreement
I-205 Columbia River Bridge

By Commission action of September 3, 1970, an engineering agreement with the consulting firm of Sverdrup & Parcel and Associates, Inc., was approved to do preliminary type studies, final design, and other work in connection with the construction of the I-205 bridge across the Columbia River.

The State and Consultant also entered into agreements for bike path studies on the structure. Work is continuing under these agreements.

Because of the Port of Portland's decision to abandon plans for expansion for the Portland International Airport, an extension of the Columbia River Bridge is required to span the south channel. The original plans were to cross this channel on a fill proposed for the airport expansion. This supplemental agreement will provide a feasibility study of different alternates available for a southerly extension of the main Columbia River Bridge.

This is a federal-aid project and Federal Highway Administration approval has been received. The cost of this study is limited to $219,200.

I recommend that you approve this supplemental agreement and authorize me to sign it for and in your behalf. This matter will be on the agenda for your consideration at the November 21 meeting.

bc: Cecil Head
George Baldwin
A. E. Johnson
E. S. Hunter
V. E. Skoog
W. J. Hart
R. N. Bothman
Gary Sund
Bob Whipps

RJQ:dh cm

8905
Consult.

Form FHWA 121 (Rev. 5-73)

RECEIVED
STATE HWY ENGR
NOV 23 73
REFER TO
Hunter. 7AA
FOR

| Info | Inves | R/D | O/R | Sign | Act | File |
|---|---|---|---|---|---|---|
| | | | | | | |

cyag

UNITED STATES GOVERNMENT

# *Memorandum*

Orig

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
Box 300
Salem OR 97308

**DATE:** November 21, 1973

**In reply refer to:** 10-35.7

**SUBJECT:** Oregon Project I-205-7(2)302
Columbia River Bridge
Hydraulics Analysis Extension Study

**FROM** : G. L. Green, Division Engineer

**TO** : Mr. F. B. Klaboe, Administrator & State Highway Engineer
Salem, Oregon
Attention: Mr. Walt Hart

We have reviewed the following submittals on the preliminary hydraulics study for the Columbia River Bridge site:

Bauer Engineering October 4 letter to Allen from Keifer
S & P October 12 letter to Hart from Allen
Bauer Engineering October 12 letter to Allen from Keifer
S & P October 16 letter to Hart from Allen

Extreme care must be exercised in the preparation of the EIS on this project because of its controversial nature. If the hydraulics information submitted is expected to be a portion of the statement it should be worded to enable both the layman and the technician to understand the comments. Mathematical refinements beyond the scope of reasonable assumptions (significant figures) should not be incorporated because they mislead the public as to the degree of accuracy of the studies.

In Bauer's comments on Alternate 3 much emphasis is placed on dredging in the channel. It would not appear appropriate to threaten Sand Island. However, excavation within the channel would appear to be easily controlled by broadening the designated borrow area. We feel the EIS should thoroughly cover the ramification of borrow and sediment transport.

Emphasis on Alternate 1 and 2 should be stressed because they appear to be viable alternates. Study reporting for these alternates should be very thorough. In Alternate 3 the flood-state backup of 0.21 feet mentioned as "relatively high" in S & P letter of October 12 is a confusing comment and we question the appropriateness of the statement if it is to be included in the EIS.

Other comments by Regional Hydraulics Engineer are quoted below and reinforce our previous statement about significant figures. Please

(more)

review these items and discuss them with the consultant before incorporating them into the EIS and final report.

"Bauer Engineering has furnished preliminary information on items numbered 1 through 8 and 10 through 14 as requested by the State. Since their transmittal letter states that these data will be covered much more thoroughly in the final report, we have limited our comments to the following:

1. The narrative explanations could be improved by writing for a broader range of reviewers. "Pragmatically" and "benthal load" are specific examples of terms which could be changed for better understanding.

2. We question the apparent bias developed toward Alternate no. 1 by carrying computations beyond the valid significance determinded by basic assumptions and measurements. Examples are:

    a. Differences in stage of 0.03 and 0.04 feet.

    b. Sediment transport on the order of 1.4%.

    c. Changes in river bed as small as 0.05 feet.

    d. Decreases in the rate of sediment transport estimated to be 4.6% of the existing capacity.

    e. A change in cross sectional area of 1.2% under the 100-year flood.

    f. Velocity changes on the order of 0.05 ft/sec.

3. Under item no. 7 it may be desirable to mention the Corps' plan for expanding the power plant at Bonneville Dam."

For/ G. L. Green

November 8, 1973

Mr. Jack Allen
Sverdrup & Parcel and Associates, Inc.
P. O. Box 369
Bellevue, Washington 98004

Dear Mr. Allen:

Columbia River (I-205) Bridge
Bridge 9555
Hydraulic Analysis
Extension Study

We have reviewed the consultant's preliminary evaluation of the three alternative schemes for the 4000-foot extension. Our Hydraulic Department reports that they can see no hydraulic basis for eliminating Alternative 3 at this time. Therefore, it is suggested that the study of all three alternatives be pursued.

A communication from the Washington State Department of Highways recommends the use of either Alternative 1 or Alternative 2.

Very truly yours,

E. S. Hunter
Assistant State Highway Engineer

cc: George H. Andrews, Director
Washington State Highway Department
Highway Administration Building
Olympia, Washington 98504

Mr. Richard Carroll, District Engineer
Washington State Highway Department
Vancouver, Washington

bc: F. B. Klaboe
A. E. Johnson
W. J. Hart
R. N. Bothman
P. M. Oakley
Glen L. Green

PMO:ag jf

SVERDRUP & PARCEL AND ASSOCIATES, Inc.
*Consulting Engineers*
505 - 106TH AVENUE N. E.
P. O. BOX 369
BELLEVUE, WASHINGTON 98004

October 12, 1973

Oregon State Department of Highways
Highway Building
Salem, Oregon 97310

Attention: Mr. Walter J. Hart
Bridge Engineer

Gentlemen:

Subject: I-205 Columbia River Bridge
Bridge No. 9555
Extension Study
Hydraulic Analysis

Bauer Engineering, Inc., our subconsultant for the subject Hydraulic Analysis, has made a preliminary evaluation of three alternative extension schemes as described in their letter report enclosed for your information.

Alternative 1 is the all-structure scheme as shown on the plan forwarded with our letter dated August 15, 1973. A copy of that plan, with the embankments of Alternatives 2 and 3 superimposed, is enclosed.

Alternative 2 provides structure over the north and south river channels with approximately 1,200 feet of embankment section located on Government Island.

Alternative 3 is similar to Alternative 2 except the embankment section is approximately 3,000 feet long.

These three alternatives are not, strictly speaking, merely extensions of the former bridge layout which terminated on fill for a new airport runway. Each alternative is, rather, a scheme for an 11,700 foot long bridge and requires some modification of the former design. Piers are aligned in the direction of present river flow and limits of the embankment sections have been chosen to preserve the present division of flow between the north and south channels.

NOTED
R. W. ELLISON

In our earlier discussions, we talked of a fourth alternative extension which was all on embankment except for a bridge only large enough to span the small boat channel. In view of the Port of Portland's decision to abandon their proposed fill and since the back-up flood stages for Alternative 3 are relatively high in the south channel, we now believe that the fourth alternative should not be considered.

Please let us have your comments at your earliest convenience.

Very truly yours,

SVERDRUP & PARCEL AND ASSOCIATES, Inc.

Jack Allen

R. Jack Allen, P.E.
Project Engineer

Enclosures

cc: Robert N. Bothman

BAUER ENGINEERING, INC.
CONSULTING ENGINEERS LAND AND WATER RESOURCES
20 NORTH WACKER DRIVE
CHICAGO, ILLINOIS 60606

TELEPHONE
(312) 641-0210

CABLE ADDRESS
"BAUERENG CHICAGO"

October 4, 1973

ENCLOSURE TO
LETTER DATED
OCT 1 2 1973
FROM
SVERDRUP & PARCEL
AND ASSOCIATES INC

Mr. R. Jack Allen, P. E.
Sverdrup & Parcel and Associates, Inc.
505 - 106th Avenue, N. E.
P. O. Box 369
Bellevue, Washington 98004

Dear Mr. Allen:

We are pleased to present our preliminary recommendation on the configuration of the embankment to be constructed on the proposed I-205 Highway Bridge.

Three alternatives as proposed in Mr. Hung's letter dated September 6, 1973, with a minor adjustment on Alternative 3 (the embankment originally proposed from Pier No. 21 to Pier No. 39 is adjusted to extend from Pier No. 23 to Pier No. 36) have been analysed. The configurations of each alternative are shown in the attached Exhibits A through D, and the back up during flood stage caused by the proposed embankment and piers are shown in Table A.

Alternative 3 will not have any pronounced effect on the flood stage to the upstream river, as shown in Table A. However, from our preliminary investigation, the considerable volume of dredging which would be required in conjunction with the construction of the Alternative 3 embankment, would result in a noticeable interference with the equilibrium of the channel.

The configuration of the embankment as proposed in Alternative 3 will also reflect the flow in the North Channel toward the north which may threaten the stability of Sand Island.

In addition to these hydraulic considerations, the extended embankment of Alternative 3 beyond that of Alternative 2, which extension would be laid on the existing sand bar, would not be desirable from an aesthetic point of view. Future floods upstream may be attributed to the extended embankment into the stream lines, although not supported by our hydraulic analysis.

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OCT 8 1973
SVERDRUP & PARCEL
& ASSOCIATES INC.

On the other hand, the configuration of the embankment proposed in Alternative 2, would be laid entirely on the existing heavily vegetated Government Island, the required volume of embankment fill in is on the order of one-third of that required by Alternative 3, and thus would have much less disturbance on the continuity of the sediment transportation.

Based on these preliminary determinations, the configuration of the embankment as proposed in Alternative 2, or the construction of the bridge all on piers as proposed under Alternative 1, will not have any pronounced adverse effects on the hydraulics of the Columbia River. The selection between these alternatives must be cost and other equally important considerations.

It is our recommendation that if a portion of the I-205 Highway Bridge is to be constructed on embankment, the limits of such embankment should not extend beyond that shown in Alternative 2.

Should there be any questions regarding this matter, please contact us.

Sincerely yours,

Clint J Keifer

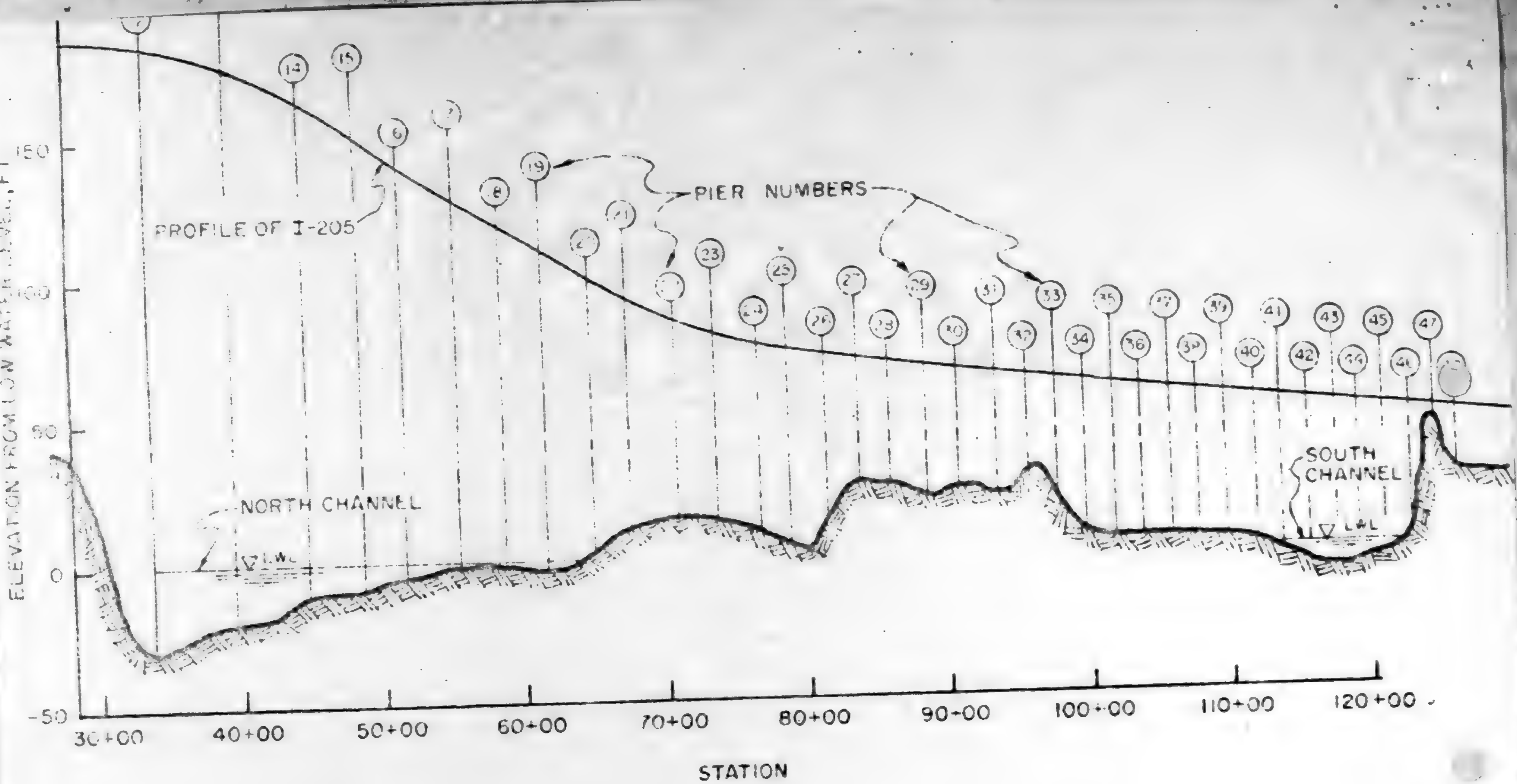
Clint J. Keifer
President

CJK/pr

Attachments

## TABLE A BACK-UP FLOOD STAGES FOR EACH ALTERNATIVE

| Alternative | Channel | Flood Return Period | Flood Flow (cfs) | Back-Up Flood Stage (feet) |
|---|---|---|---|---|
| 1 | south | 2 | 105,000 | 0.04 |
| | | 10 | 160,000 | 0.06 |
| | | 100 | 225,000 | 0.08 |
| | north | 2 | 255,000 | 0.03 |
| | | 10 | 350,000 | 0.04 |
| | | 100 | 465,000 | 0.05 |
| 2 | south | 2 | 105,000 | 0.04 |
| | | 10 | 160,000 | 0.07 |
| | | 100 | 225,000 | 0.10 |
| | north | 2 | 255,000 | 0.03 |
| | | 10 | 350,000 | 0.05 |
| | | 100 | 465,000 | 0.06 |
| 3 | south | 2 | 105,000 | 0.09 |
| | | 10 | 160,000 | 0.15 |
| | | 100 | 225,000 | 0.21 |
| | north | 2 | 255,000 | 0.06 |
| | | 10 | 350,000 | 0.09 |
| | | 100 | 465,000 | 0.12 |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Exibit B

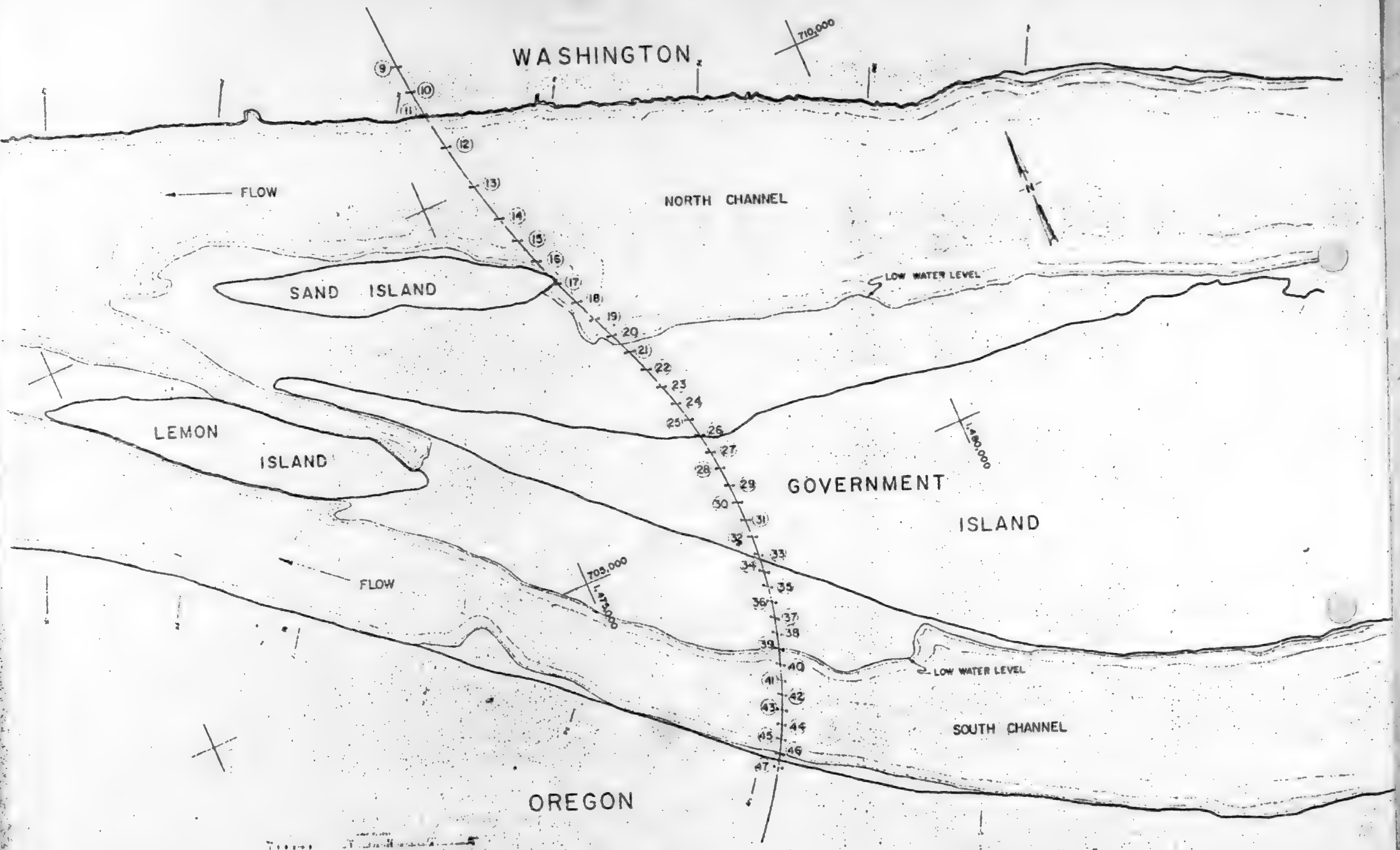
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Exhibit C

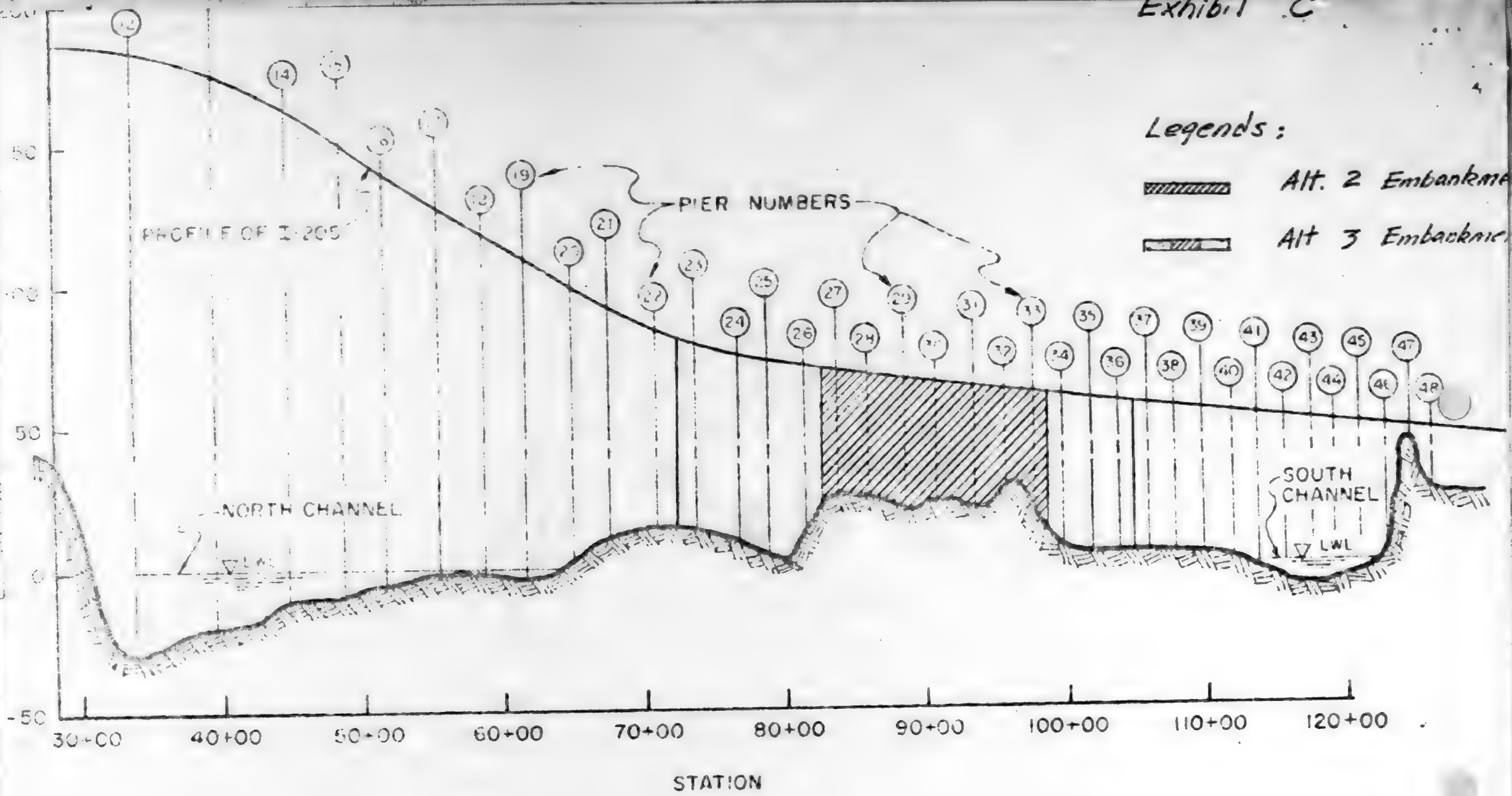
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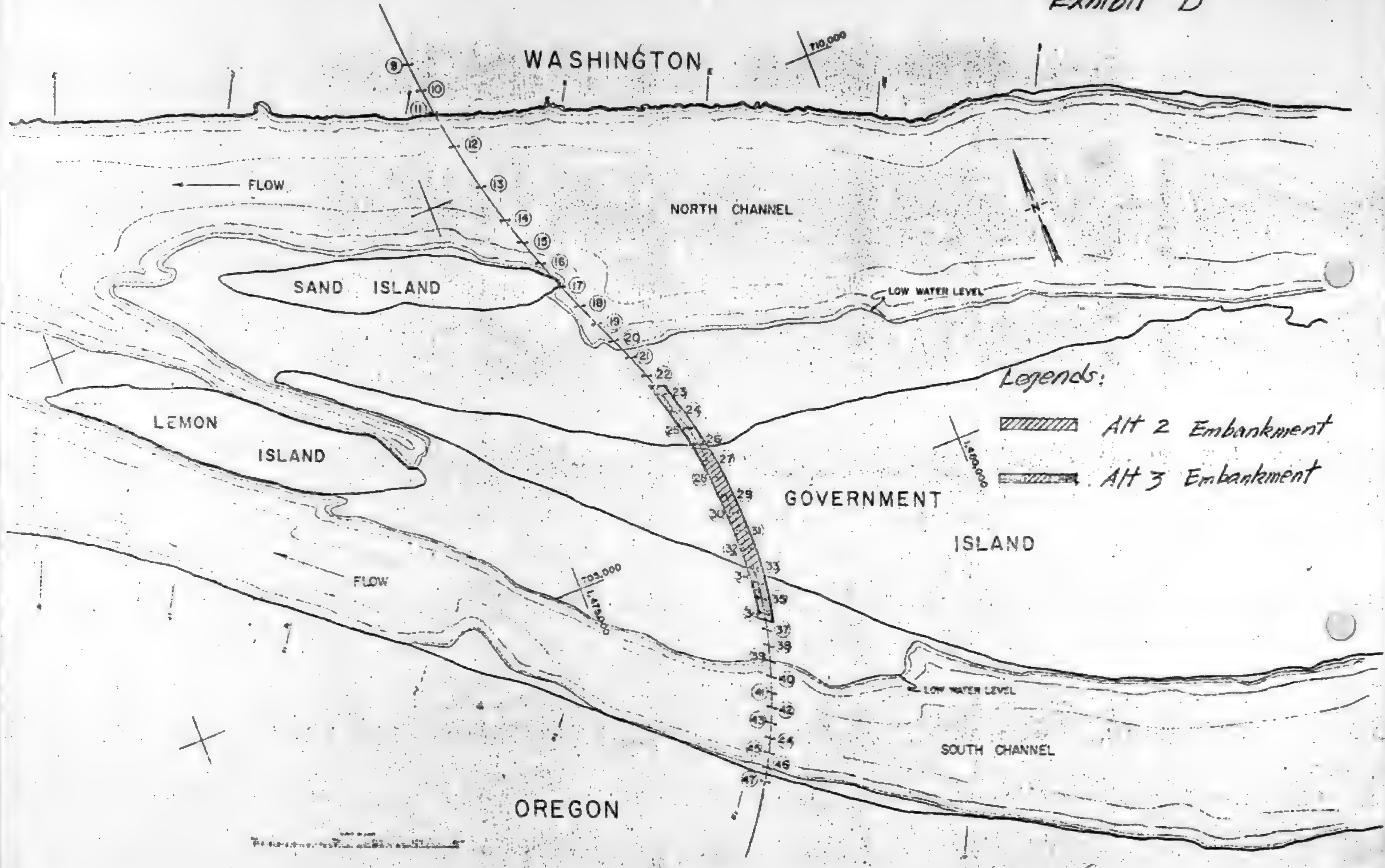
Exhibit D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8905 Consult

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1859

**OREGON STATE**
**HIGHWAY DIVISION**

HIGHWAY BUILDING • SALEM, OREGON • 97310

TOM McCALL
GOVERNOR

F. B. Klaboe
Administrator of Highways

November 14, 1973

Mr. Jack Allen, P.E.
Sverdrup & Parcel and Associates, Inc.
P. O. Box 369
Bellevue, WA 98004

NOTED
E. S. HUNTER

Dear Mr. Allen:

Columbia River (I-205) Bridge
Bridge No. 9555
Earthquake Analysis Criteria

We have reviewed the Earthquake Analysis Report submitted with your letter of March 19, 1973 and approve the design criteria developed for use in the design of the subject structure. We have received concurrence in our approval from both the Federal Highway Administration and the Washington State Department of Highways.

Very truly yours,

HAR
Walter J. Hart
Bridge Engineer

PMO:dh

cc E. S. Hunter
George H. Andrews
Glen L. Green

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NOV 15 1973
OFFICE OF
ASSISTANT STATE HIGHWAY ENGINEER

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**OREGON STATE**
**HIGHWAY DIVISION**

HIGHWAY BUILDING • SALEM, OREGON • 97310

TOM McCALL
GOVERNOR

F. B. Kluboe
Administrator of Highways

November 5, 1973

Mr. Jack Allen, P.E.
Sverdrup & Parcel and Associates, Inc.
P. O. Box 369
Bellevue, WA 98004

NOTED
E. S. HUNTER

Dear Mr. Allen:

Columbia River (I-205) Bridge
Bridge No. 9555
Geometry South End

Attached are three copies of additional geometric information for the south end of the structure. This supplements the items forwarded with our letter of October 25, 1973.

Very truly yours,

Walter J. Hart
Bridge Engineer

PMO:dh
Attachments (3)

cc E. S. Hunter
W. M. Foster /w/ attach. (1)
R. L. Carroll /w/ attach. (1)
F. H. W. A. /w/ attach. (1)

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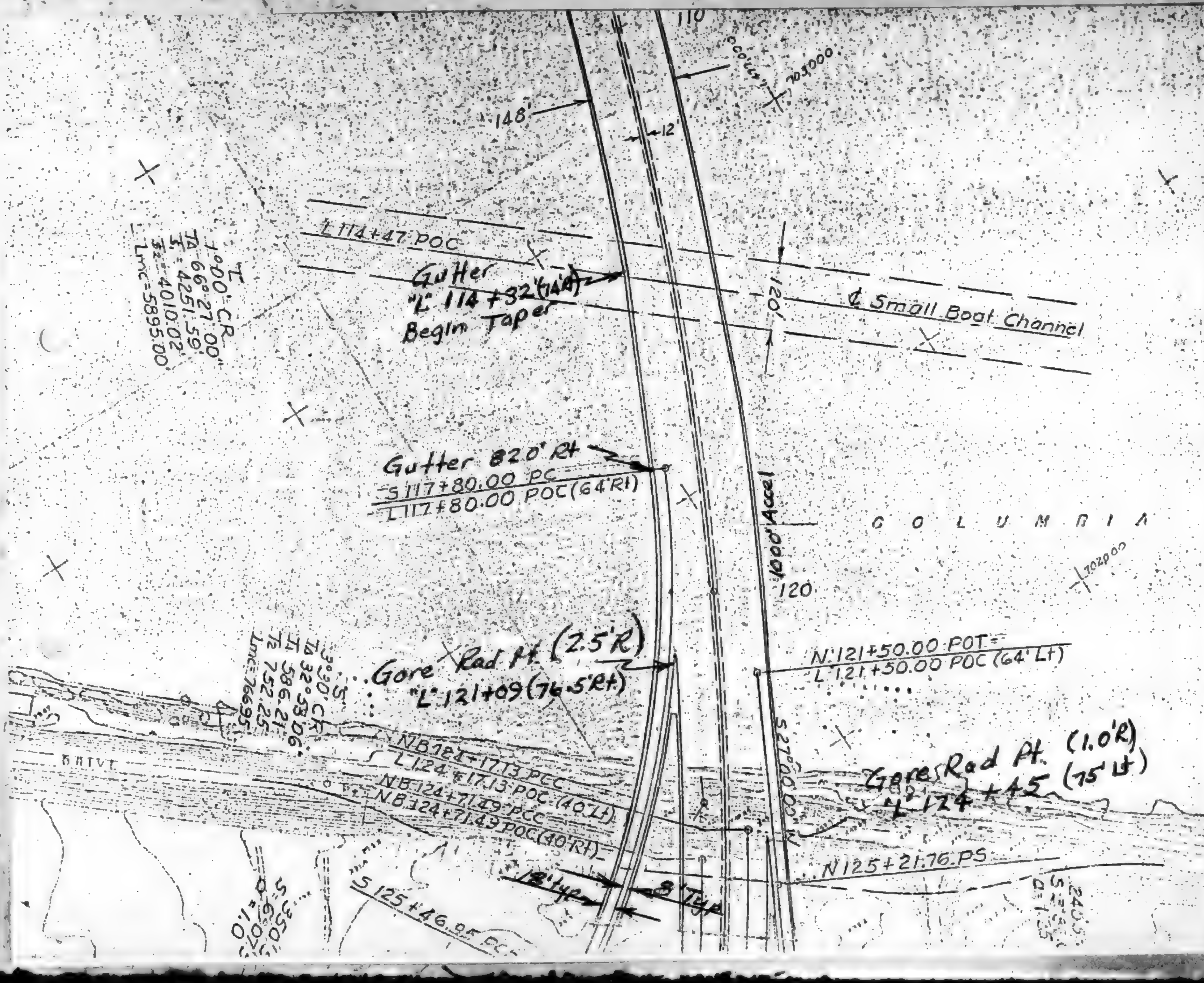
ASSISTANT STATE HIGHWAY ENGINEER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1000' Accel
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Gore Rad Pt. (2.5'R)
"L" 121+09 (76.5'Rt)
N 121+50.00 POT=
L 121+50.00 POC (64'Lt)
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3°30' CR
TA 32°53'06"
T1 586.21
T2 752.25
Lmc=766.95
DRIVE
NB 124+17.13 PCC
L 124+17.13 POC (40'Lt)
NB 124+71.49 PCC
NB 124+71.49 POC (40'Rt)
S 27°00'00" W
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8' Typ
S 125+46.95 PC
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Δ=1.35

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OREGON STATE
HIGHWAY DIVISION

HIGHWAY BUILDING • SALEM, OREGON • 97310

TOM McCALL
GOVERNOR

F. B. Klaboe
Administrator of Highways

October 31, 1973

Mr. George Andrews
Director of Highways
Department of Highways
Highway Administration Building
Olympia, Washington 98504

Dear Mr. Andrews:

Columbia River (I-205) Bridge
Bridge 9555
Consultant's Progress Report

Enclosed for your information is a copy of Sverdrup & Parcel's latest Progress Report for the Columbia River Bridge.

Very truly yours,

Walter J. Hart
Bridge Engineer
ORIGINAL SIGNED
By R.W. ELLISON
R. W. Ellison
Bridge Administration Engineer

PMO/ag

Encl.

cc E. S. Hunter w/encl.
R. L. Carroll w/encl.
FHWA w/encl.

NOTED
E. S. HUNTER

RECEIVED
OCT 31 1973
OFFICE OF
ASSISTANT STATE HIGHWAY ENGINEER

SVERDRUP & PARCEL AND ASSOCIATES, Inc.
*Consulting Engineers*
505 - 106TH AVENUE N. E.
P. O. BOX 369
BELLEVUE, WASHINGTON 98004

October 29, 1973

Oregon State Highway Division
Highway Building
Salem, Oregon 97310

Attention: Mr. Walter J. Hart
Bridge Engineer

Gentlemen:

Subject: Progress Report No. 48
Columbia River Bridge No. 9555

This report covers the period from October 13, 1973, to October 26, 1973.

PROGRESS TO DATE

FINAL DESIGN UNDER ORIGINAL AGREEMENT

We estimate that Phase B of the project is 55.3 percent complete.

An earthquake analysis and report have been submitted to the State.

The East Bridge Prestressing from Pier 15 to the Oregon abutment is complete. Substructure design and the West Bridge Cantilever prestressing design has been temporarily interrupted pending approval of details of the median mounted Pedestrian Bicycle Path.

See note.

Bike Path Addition - Eight alternative schemes for the Washington approach ramp to the Pedestrian Bicycle Path, along with a report presenting a suggested design criteria and a recommended ramp scheme were submitted. Alternative schemes for the Oregon approach ramp are being developed.

Approval of the 9'-4" width of the proposed median pedestrian bicycle path was received.

We estimate that the work involved in design of the bike-path and redesign of the bridge to accommodate it is 5.4 percent complete.

BRIDGE EXTENSION

A draft of the Supplemental Agreement (1st Supplement) covering the preliminary study of the bridge extension has been reviewed and our comments forwarded.

NOTED
R.J. WRIGHT

FHWA
Copies to Geo. Andrews
R. L. Carroll
10/30/73
dl

RECEIVED
OCT 30 1973
BRIDGE DIVISION

NOTED
R. W. ELLISON

Note: I called Jack Allen (S&P)
10/30/73 - details referred to
have not been sent to us - will
be shortly then we can approve.

NOTED
P. M. OAKLEY

Preliminary Report - Preliminary design of the all-structure and the combination embankment and structure alternatives are progressing. A plan of span lengths for the all-structure alternative has been submitted. We estimate the Preliminary Report to be 36 percent complete.

Foundation Investigation - Land and water drilling is complete. Final drilling and sampling quantities are as follows:

| | |
|---|---|
| Drilling - Land | 1,386 Lin. ft. |
| Drilling - Water | 1,498 Lin. Ft. |
| Split Tube Samples | 495 |
| Undisturbed Samples | 24 |

A total of 485 split tube samples and 22 undisturbed samples have been analyzed. Preparation of the Foundation Report continues and is approximately 60 percent complete.

Hydraulic Studies - Hydraulic studies for the 4,000-foot bridge extension are progressing and a preliminary evaluation of three alternate extension schemes has been submitted. We estimate these hydraulic studies to be 47 percent complete.

## FOUNDATION TESTS

Bids for the Test Pile and Plate Load Foundation have been received and opened.

## CHRONOLOGY OF EVENTS IN REPORT PERIOD

October 15, 1973 - Submitted bike path design criteria and north access ramp alternatives.

October 16, 1973 - Submitted Environmental Impact Data as required in the extension study draft agreement.

October 17, 1973 - Received a revised bridge profile with letter dated October 15, 1973.

October 22, 1973 - Received a request for a detailed breakdown of our previously submitted additional engineering costs for redesigning and adding a bike path to the bridge.

October 23, 1973 - Received approval of the 9'-4" width for the proposed bike path, along with comments and questions concerning certain bike path details.

October 23, 1973 - Received copies of the Foundation Test bids, revised engineer's estimate and a letter to WSDH justifying the low bid.

RECEIVED
OCT 30 1973
BRIDGE DIVISION

## ANTICIPATED FOR NEXT REPORT PERIOD

### FINAL DESIGN

Bike Path Addition - Work will continue on the bike-path design and on the alteration of the already completed design.

Alternative schemes for the Oregon approach ramp to the bike-path will be submitted.

### BRIDGE EXTENSION

Preliminary Report - Work will continue on the all-structure alternative and the combination of embankment and structure alternatives.

Foundation Investigation - Analysis of samples will be completed and preparation of the Foundation Report will continue.

Hydraulic Studies - Work will continue on the hydraulic studies.

### FOUNDATION TESTS

Award of the contract for the Test Pile and Plate Load Foundation tests will be made.

Very truly yours,

SVERDRUP & PARCEL AND ASSOCIATES, Inc.

R. D. Bane

R. D. Bane, P. E.
Assistant Vice President

cc: Robert N. Bothman

RECEIVED
OCT 30 1973
BRIDGE DIVISION

3905
Consult

UNITED STATES GOVERNMENT

*Memorandum*

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
Box 300
Salem OR 97308

DATE: October 24, 1973

In reply refer to: 10-35-EC2

SUBJECT: Oregon Project I-205-7(2)303
Columbia River Bridge
Supplemental Agreement for Bridge Extension

FROM : G. L. Green, Division Engineer

TO : Mr. F. B. Klaboe, Administrator & State Highway Engineer
Salem, Oregon

The proposed supplemental agreement with Sverdrup & Parcel and Associates for the feasibility study of various alternates available for the extension of the Columbia River Bridge has been reviewed and is considered satisfactory. The above mentioned proposal includes the revisions furnished with Mr. Hunter's October 15 letter.

Please furnish three copies of the executed agreement for our formal approval when they become available.

G. L. Green

E. S. HUNTER
Ellison Handle

10-29-73
original to Bob Ellison
to handle.

RECEIVED
STATE HWY ENGR
OCT 25 '73
REFER TO
Hunter TAA
FOR
Info | Inves | R/D | D/R | Sign | Act | File

RECEIVED
OCT 26 1973
OFFICE OF
ASSISTANT STATE HIGHWAY ENGINEER

8705

Consult

October 18, 1973

TO Oregon State Transportation Commission

FROM A. E. Johnson
Acting State Highway Engineer

SUBJECT Supplemental Consultant Agreement
I-205 Columbia River Bridge

By Commission action of September 30, 1970, an agreement with the firm of Sverdrup & Parcel and Associates, Inc., was approved to provide preliminary studies, final design and other work in connection with the design of the I-205 Columbia River Bridge.

The design of this structure is progressing. However, because of the unique design features involved, it is necessary to obtain certain foundation data not covered by the original design agreement with the consultant. Acquisition of this data requires a program of test piles and plate load tests. This program involves letting a contract for the actual testing work and negotiating a supplemental consultant agreement for engineering services required to accumulate and analyze the test data.

copy

Bids have been taken for the test work and the project will be awarded as soon as approval is received from the Federal Highway Administration and the Washington Highway Commission. The required supplemental consulting agreement for engineering services has an estimated total cost of $96,230.

This is a federal aid project, and we have approval of the supplemental agreement by the Federal Highway Administration except for the administrator fee of $8,750. Present indications are that FHWA would approve half of this amount without further justification, but additional justification is being presented and approval of the entire fee is anticipated.

We believe the entire fee is justified; however, in the event that the FHWA does not concur approximately half of this fee ($4,400) would be financed with State funds only.

The State of Washington will participate in the costs of consulting engineering services in accordance with the original I-205 agreement executed by the Highway Commissions of Oregon and Washington. A copy of this proposed supplemental agreement has been sent to the Washington Commission for review and approval.

I recommend your approval of this supplemental agreement and request authorization to sign it, contingent upon formal approval by the Federal Highway Administration and the State of Washington.

This will be an item on the agenda for the October 24 meeting.

bc: C. W. Head
G. M. Baldwin
F. B. Klaboe
E. S. Hunter
Walter Hart
V. E. Skoog
L. H. Young
Gary Sund
R. E. Whipps

RWE:ag cm

8905

Consult

October 15, 1973

Mr. Glen L. Green, Division Engineer
Federal Highway Administration
Post Office Box 300
Salem, Oregon 97308

Dear Mr. Green:

Sverdrup & Parcel and Associates, Inc.
Supplemental Agreement for Bridge
Extension
I-205 Columbia River Bridge
FAP I-205-7(2)303

On October 3, 1973 you were sent copies of the proposed supplemental agreement with Sverdrup & Parcel and Associates, which will provide a feasibility study of different alternates available for a southerly extension of the main Columbia River Bridge.

Enclosed are three copies of three revised pages of this supplemuntal agreement made necessary by an increase in quantities of the foundation investigation.

It has been found that the foundation conditions in the south channel slough are not as uniform as were encountered on the north side. The underlying hard conglomerate formation dipped sharply to the south and in certain test holes, disappeared entirely.

As drilling has progressed, more irregularities have been discovered in the subsurface material, and additional water drilling and analysis are necessary to determine the depth of the conglomerate formation. The changed quantities are as follows:

| | | |
|---|---|---|
| 200 L.F. of water drilling @ $23.50 per lineal foot | = | $4,700 |
| 15 only analysis of split tube samples @ $60.00 each | = | 900 |
| 20 only undisturbed samples at $15.00 each | = | 300 |
| TOTAL | | $5,900 |

The fee schedule in the agreement has been changed to reflect the above revision in quantities and cost.

May we have your approval of the revised supplemental agreement?

Very truly yours,

E. S. Hunter
Assistant State Highway Engineer

Attachments

RJW:ag jf

bc: F. B. Klaboe
A. E. Johnson
V. E. Skoog
W. J. Hart
L. H. Young
R. N. Bothman
R. O. Cunningham

(11) Temperature changes of the water as a result of the construction.

(12) Pollution factors during construction.

(13) Turbidity factors during construction.

4. Compensation to Consultant for work required under this supplemental agreement is shown as a part of Exhibit "A". A contingency and overrun allowance of $10,440 (5%) is authorized which brings the limiting amount under this supplemental agreement, without renegotiation, to $219,300.

5. The Environmental Impact Data, as outlined in Paragraph 3e, will be submitted to the State on or before October 19, 1973. The entire study will be completed and all reports submitted to the State on or before December 21, 1973.

6. The effective date of this agreement is July 17, 1973.

July 6, 1973

Foundation Investigation, are unit prices and lump sum amounts as quoted by Cornell, Howland, Hayes & Merryfield. The total amount shown ~~on the attached schedule for Items 2(b) through 2(i)~~ is $97,950.00 based on a total of 3,100 lineal feet of drilling.

For the Hydraulic Study, we propose to provide our services ~~required under Item 3(a), Administrator Fee~~, for a lump sum fee of $1,400.00. ~~Item 3(b) of the attached schedule, for the Hydraulic Study, is the estimated total fee of $27,000.00 as quoted on a unit price basis by Bauer Engineering. A copy of the Bauer Engineering proposal is attached.~~ Bauer Engineering will make the study for cost (estimated at $20,660) plus a fixed fee ($6,300).

Two sheets of fee determination for Item I are also attached showing estimated manhours, salary rates, direct costs, overhead, profit, and cost of consultants to be employed by our firm. In addition to the firms employed for the foundation investigation and the hydraulic studies, we will employ the firm of Broome, Selig, & Oringdulph for architectural services, and Ben C. Gerwick, Jr., as consultant in connection with construction aspects of the studies.

This proposal is based on the following assumptions:

1. The studies will be based on existing topography with consideration given to the possible future airport fill in the south channel and possible future dredging in the north channel.

2. Pier shapes and superstructure concepts are to remain as currently proposed except the recommended method of superstructure construction. Precast, segmental, cantilever construction may be changed in some areas either to cast-in-place construction supported on falsework, or to cast-in-place, segmental, cantilever construction.

3. All profiles and horizontal control are to be furnished by the State.

4. The State will obtain all rights of way required for the project.

5. The State will obtain all utility permits, U. S. Department of Transportation permits and other agreements necessary for the project.

EXHIBIT A

RECEIVED
JUL 9 1973
BRIDGE DIVISION

[illegible]

## FEE SCHEDULE

| Item | Unit & Quantity | Unit Price | Amount | |
|---|---|---|---|---|
| I. Sverdrup & Parcel and Associates, Inc. Preliminary Report, Complete | L.S. | - | | $ 78,450 |
| II. Foundation Investigation | | | | |
| A. CH2M/Hill | | | | |
| 1. Foundation Report | L.S. | - | $ 3,500 | |
| 2. Mobilization and Demob. | L.S. | - | 16,500 | |
| 3. Land Drilling | 1,400 L.Ft. | 19.00 | 26,600 | |
| 4. Water Drilling | 1,700 L.Ft. | 23.50 | 39,950 | |
| 5. Split Tube Sampling | 550 Only | 6.00 | 3,300 | |
| 6. Analysis of Split Tube Samples | 50 Only | 60.00 | 3,000 | |
| 7. Undisturbed Samples | 40 Only | 15.00 | 600 | |
| 8. Analysis of Undisturbed Samples | L.S. | - | 4,500 | |
| Subtotal - Foundation Investigation | | | $97,950 | |
| B. Sverdrup & Parcel and Associates, Inc. | | | | |
| Administrator Fee | L.S. | - | 4,000 | |
| Total - Foundation Investigation | | | | $101,950 |
| III. Hydraulic Study | | | | |
| A. Bauer Engineering, Inc. | | | | |
| 1. Study and Report | Reim. | - | $20,660 | |
| 2. Fixed Fee | L.S. | - | 6,300 | |
| Subtotal - Hydraulic Study | | | $26,960 | |
| B. Sverdrup & Parcel and Associates, Inc. | | | | |
| Administrator Fee | | | 1,400 | |
| Total - Hydraulic Study | | | | $ 28,360 |
| GRAND TOTAL | | | | $208,760 |

Items I, II.A.1, II.A.2, II.A.8, III.A.2, II.B., and III.B. are fixed quantity items, paid for on a lump sum basis.

Items II.A.3, II.A.4, II.A.5, II.A.6, II.A.7, and III.A.1 are variable quantity items. Quantity paid for will be the actual quantity of work performed.

EXHIBIT A

8405
Consult.

October 3, 1973

Mr. Glen L. Green, Division Engineer
Federal Highway Administration
Post Office Box 300
Salem, Oregon 97308

Dear Mr. Green:

Sverdrup & Parcel and Associates, Inc.
Supplemental Agreement for Bridge Extension
I-205 Columbia River Bridge
FAP I-205-7(2)303

Enclosed are three copies of the proposed supplemental agreement with Sverdrup & Parcel and Associates, Inc., which will provide a feasibility study of different alternates available for a southerly extension of the main Columbia River Bridge. A preliminary copy of the agreement was discussed with Messrs. Schell and Burghardt in July of this year. Since that time additional cost data has been received from the consultant, some of which has been incorporated into the agreement in Exhibit A.

Other information is enclosed as follows:

1. The certification of the agreement for compliance with PPM 30-11 from the State's Chief Accountant.
2. The justification for the fees of $CH_2M$/Hill, subconsultant, including a copy of Page 16 of the original agreement.
3. A copy of the July 24, 1973, letter from Mr. Bane justifying the administrative fees of Sverdrup & Parcel as shown in the fee schedule. It was indicated at the July meeting that this was a satisfactory explanation.

4. A tabulation of the in-house cost of doing the work. Total cost figures without profit are as follows:

| | |
|---|---|
| Preliminary Design | $ 88,388 |
| Foundation Investigation | 79,750 |
| Hydraulic Study | 24,140 |
| Total | $192,278 |

Consultant's proposal ($202,860) minus $192,278 = $10,582. This difference is 5.5 percent over the in-house cost figures and is considered a reasonable amount for the following reasons.

a. Preliminary Design

The State does not have the manpower available to do this work. Further justification of the fee is as follows:

Cost of the preliminary report in the original agreement = $186,300.
4,000 feet added length of structure = 53 percent of the original length.
$186,300 x .53 = $98,739.
Consultant's fee this agreement = $78,450.

This cost is reasonable (even though some of the alternates considered will include fill areas), since one alternate to be considered will be 4,000 feet of structure.

b. Foundation Investigation

The State does not have personnel available to do this work. CH$_2$M/Hill has provided the foundation investigation work done under the original agreement and will be doing the forthcoming test pile work. They are a reputable firm in this field with the expertise needed to provide the foundation data required in a timely manner. The total fee for prime plus subconsultant of $96,050 is reasonable (see attached itemized fee justification).

c. Hydraulic Study

The State does not have the personnel or the expertise to do this work. Bauer Engineering is internationally known for their work in the field of hydraulics and has already made studies of this area of the Columbia River. They are, therefore, in a position to provide hydraulic data sooner than any other firm which might be employed, thus facilitating an early completion of the preliminary study. Also it is estimated that the cost of this work by any other firm would be approximately $40,000 which is some $11,600 more than the total estimated cost for this work of $28,360.

Payment to Bauer Engineering will be on a cost plus a fixed fee basis (see fee determination, Exhibit A of the agreement).

The estimated cost is $20,660 and the fixed fee is $6,300 which is 30.5 percent of the cost. Although the fixed fee percentage is large, the total amount is not and it is deemed justifiable for the reasons outlined above. The Hydraulic Engineer is preparing an additional justification for the cost of this work which will be forwarded to you as soon as it is available.

It is our opinion that Bauer Engineering is the best firm for obtaining this hydraulic data and will provide a good quality study sooner than any other firm and at less cost to the State and the FHWA.

The liaison officer to monitor the contract will be the Bridge Engineer, Walter J. Hart. Your letter of August 8, 1973 confirmed that the tentative authorization to proceed with this study was given by you on July 17, 1973. This date will be used as the effective date of the agreement.

I certify that the technical provisions in the proposal are in compliance with the FHWA's PPM 30-11.

Very truly yours,

E. S. Hunter
Assistant State Highway Engineer

Attachments

RJW:dh jf

bc: F. B. Klaboe
A. E. Johnson
W. L. Barrie
V. E. Skoog
V. D. Wolfe
W. J. Hart
L. H. Young
R. N. Bothman
R. O. Cunningham

Copy of the supplemental agreement is in Walt Hart's Office.

FORM E-30

# OREGON STATE HIGHWAY DIVISION

INTER-DEPARTMENT CORRESPONDENCE

Salem, Oregon

DATE September 26, 1973

TO Walter J. Hart
Bridge Engineer

FROM Frank R. Griffin
Chief Accountant Frank R Griffin

SUBJECT Sverdrup & Parcel & Assoc., Inc.
Supplemental Agreement #1
Pre-award Evaluation
I-205-7(2)303

I certify that the referenced Supplement #1 proposing a 4,000-foot extension to the I-205 Columbia River Bridge between Portland and Vancouver, was subjected to an audit evaluation. The proposed amounts are generally proper.

DWJ:njc

RECEIVED
SEP 27 1973
BRIDGE DIVISION

# FEE JUSTIFICATION

CH$_2$M/Hill, Subconsultant

LUMP SUM ITEMS:

1. Foundation Report $3,500

   Cost approved in original agreement (Sept. 30, 1970) = $7,500

   Added length = $\frac{4000}{7579}$ = 53% of original length.

   5% inflation factor for 3 years = 3 x 05 = .15

   Factor for total expected cost (Inflation + Added Length) = 1.15 x .53 = .61

   $7500 x .61 = $4570

   There fore $3,500 fee for extension is reasonable.

2. Mobilization and Demobilization $16,500

   Cost approved in original agreement = $11,500

   Original equipment required was 2 land drill rigs (one on Government Island) and 1 water drill rig (total of 3 rigs).

   Current work provides for mobilizing all of above rigs plus one more "water" rig (total of 4 rigs), so that work can be expedited enabling final design to commence sooner.

   4/3 x 11,500 = $15,300

   Inflation = .15 x 11,500 = $1,720

   $15,300 + $1,720 = $17,020

   Therefore $16,500 fee for extension is reasonable.

8. Analysis of Undisturbed Samples $4,500

Cost approved in original amount = $6,000

Inflation + added length = .61 x $6,000 = $3,660

$4,500 - $3,660 = $840 difference.

The extra cost will provide for extensive evaluation of the consolidation and shear strength characteristics of the soft overburden soils anticipated at the south abutment location near Marine Drive.

Therefore, $4,500 fee is reasonable.

UNIT PRICE ITEMS

Most of the unit prices for items shown below are less than or equal to those already approved on page 16 of the original agreement, the supplemental foundation investigation.

| | Original Agreement | This Supplement |
|---|---|---|
| 3. Land Drilling | $19.30/ft. | $19.00/ft. |
| 4. Water Drilling | 24.00/ft. | 23.50/ft. |
| 5. Split Tube Sampling | 6.00 each | 6.00 each |
| 6. Analysis of split tube samples | 60.00 each | 60.00 each |
| 7. Undisturbed samples | 12.00 each | 15.00 each for total of $60.00 |

Therefore above unit prices are reasonable.

Original Agreement wi
Sverdrup & Parcel dated
September 30, 1970
I-205 Columbia River Bridge

Copy of Page 16

| No. | Item | Unit & Quantity | Unit Price | Amount |
|---|---|---|---|---|
| 6(a) | Check shop and constn. drawings for combined steel & conc. struct. | 9,000 hrs. | See Exh. H | $ 161,600.00 |
| (b) | Direct costs in connection with checking shop & constn. drawings for combined steel & conc. struct. (Computer Services, Long Dist. Telephone, Bulk Mailing) | All | At Actual Cost | 44,400.00 |
| | Total Combined Steel & Concrete Structures | | | 1,479,000.00 |
| 7 | Supplemental Found'n Investig. | | | |
| (a) | Mobilization & Demobilization for Land Drilling | All | L.S. | 4,000.00 |
| (b) | Mobilization & Demobilization for Water Drilling | All | L.S. | 6,000.00 |
| (c) | Land Drilling | 500 L. Ft. | $19.30 per L.Ft. | 9,650.00 |
| (d) | Water Drilling | 700 L. Ft. | $24.00 per L. Ft. | 16,800.00 |
| (e) | Split Tube Sampling | 100 Only | $6.00 per Each | 600.00 |
| (f) | Analysis of split tube sampling for water content, gradation & Atterburg Limits | 25 Only | $60.00 per Each | 1,500.00 |
| (g) | Undisturbed Samples | 5 Only | $12.00 per Each | 60.00 |
| (h) | Analysis of Undisturbed Samples | All | L.S. | 2,800.00 |
| (i) | Report | All | L.S. | 2,000.00 |
| | Total Supplemental Foundation Investig. | | | $ 43,410.00 |

SVERDRUP & PARCEL AND ASSOCIATES, Inc.
*Consulting Engineers*
505 - 106TH AVENUE N. E.
P. O. BOX 369
BELLEVUE, WASHINGTON 98004

July 24, 1973

Oregon State Highway Division
Highway Building
Salem, Oregon 97310

Attention: Mr. Walter J. Hart
Bridge Engineer

Gentlemen:

As requested by Mr. Ellison, we provide the following explanation of the Administrator Fees, Items 2(a) and 3(a) of the Fee Schedule attached to our Engineering Proposal dated July 6, 1973.

These Administrator Fees cover our estimated costs and overhead expenses involved in the handling of the subcontracts for Foundation Investigation and Hydraulic Study, respectively. Included in these expenses are the costs of bookkeeping, directing, and controlling the work. The fees are equal to approximately 5 percent of the subcontract amounts. This includes no allowance for profit and is substantially less than the normal handling charge for subcontracts.

Please advise if additional information is desired.

Very truly yours,

SVERDRUP & PARCEL AND ASSOCIATES, Inc.

R. D. Bane

R. D. Bane, P. E.
Assistant Vice President

NOTED
W. J. HART

RECEIVED
JUL 27 1973
BRIDGE DIVISION

## IN-HOUSE COST

## I-205 Columbia River Bridge

## Preliminary Design Cost for 4000-foot Extension

| | | |
|---|---|---|
| 1. Salaries | | |
| a. Architect | | $ 1,000 |
| b. Chief Eng. (HE-7) | 200 hrs @ $10.97/hr. = | 2,194 |
| c. Br. Design Eng. (HE-6) | 800 hrs @ $ 9.47/hr. = | 7,576 |
| d. Senior Engr. (HE-4) | 1,650 hrs @ $ 8.18/hr. = | 13,497 |
| e. Junior Eng. (HE-2) | 1,650 hrs @ $ 6.40/hr. = | 10,660 |
| f. Draftsmen (ET-2) | 700 hrs @ $ 5.02/hr. = | 3,514 |
| | | $38,441 |
| 2. Salary Related Expenses and Overhead | | |
| $38,441 x 1.06 = | | $40,747 |
| 3. Direct Costs | | |
| a. Computer | $6,000 | |
| b. Travel | 200 | |
| c. Renderings, Printing, Misc. | 3,000 | |
| | $9,200 | $ 9,200 |
| | | $88,388 |
| 15% Profit | | 13,258 |
| | | $101,646 |

# IN-HOUSE COST

## I-205 Columbia River Bridge

## Estimated Drilling Costs for 4000-foot Extension

9 Holes in Water in South Channel

8 Holes on Land, Government Island and South River Bank

| | | |
|---|---|---|
| 9 Holes on Water<br>150'/hole = 1500' @ $25.00/ft. | = | $37,500 |
| 8 Holes on Land<br>150'/hole = 1400' @ $20.00/ft. | = | 28,000 |
| Lab Tests on Split Tube Samples<br>50 Samples @ $50.00 ea. | = | 2,500 |
| Undisturbed Samples<br>20 Samples @ $100.00 ea. | = | 2,000 |
| Supervision | = | 4,000 |
| Report | = | 2,750 |
| Mobilization-Demobilization | = | 3,000 |
| | | $79,750 |
| 15% Profit | | 11,963 |
| | | $91,713 |

# IN-HOUSE COST

I-205 Columbia River Bridge

Estimated Cost of Hydraulic Study for 4000-foot Extension

1. Salaries

| | | | |
|---|---|---|---|
| a. | Chief Engr. (HE-7) | 100 hrs @ $10.97/hr. = | $ 1,097 |
| b. | Hydraulic Engr. (HE-3) | 300 hrs @ $ 8.18/hr. = | 2,454 |
| c. | Assistant Hydraulic Engr. (HE-3) | 400 hrs @ $ 8.18/hr. = | 3,272 |
| d. | Junior Hydraulic Engr. (HE-2) | 400 hrs @ $ 6.40/hr. = | 2,560 |
| e. | Draftsman (ET-1) | 300 hrs @ $ 4.55/hr. = | 1,365 |
| | | | $10,748 |

2. Salary Related Expenses and Overhead

$10,748 x 1.06 = $11,393

3. Direct Costs

| | | | |
|---|---|---|---|
| a. | Computer | $ 1,000 | |
| b. | Printing Cost | 500 | |
| c. | Supplies, Misc. | 500 | |
| | | $ 2,000 | $ 2,000 |
| | | | $24,141 |
| | 15% Profit | | 3,621 |
| | | | $27,762 |

870
Consult.

SVERDRUP & PARCEL AND ASSOCIATES, Inc.

October 2, 1973

Oregon State Highway Division
Highway Building
Salem, Oregon 97310

Attention: Mr. Walter J. Hart
Bridge Engineer

Gentlemen:

Subject: Progress Report No. 46
Columbia River Bridge No. 9555

This report covers the period from September 15, 1973 to September 28, 1973.

PROGRESS TO DATE

Final Design Under Original Agreement

We estimate that Phase B of the project is 55.3% complete.

An earthquake analysis and report have been submitted to the State.

The East Bridge prestressing from Pier 15 to the Oregon abutment is complete. Substructure design and the West Bridge cantilever prestressing design has been temporarily interrupted pending approval of the proposed median mounted Pedestrian-Bicycle Path.

Bike Path Addition

A typical roadway cross-section showing a proposed median pedestrian-bike path was submitted for approval. As requested, a breakdown of estimated cost for engineering services and time delay to add a Pedestrian-Bike Path to the bridge was furnished. Alternative schemes for the Washington approach ramp to the bike-path are being developed. We estimate that the work involved in design of the bike-path and redesign of the bridge to accommodate it is 3 percent complete.

NOTED
R. W. ELLISO

## Bridge Extension

Preliminary design of the all-structure alternative is progressing. A plan showing span lengths has been submitted to the State. A draft of the Supplemental Agreement (1st Supplement) covering a preliminary study of the Bridge Extension has been reviewed and our comments forwarded. We estimate that the bridge extension study is 35 percent complete.

### Hydraulic Studies

Hydraulic studies for the 4,000 foot bridge extension are progressing and we estimate these studies to be 40 percent complete.

### Foundation Investigation

Land and water mobilization is complete. Land drilling is complete, with 1,386 linear feet drilled and approximately 829 linear feet of water drilling has been completed. Three hundred and seventy-seven split tube samples and twenty-two undisturbed samples have been taken. Twenty-five split tube samples and twenty-two undisturbed samples have been analyzed.

## Foundation Tests

Invitation for Bid for the Test Pile and Plate Load Foundation Tests has been issued.

## CHRONOLOGY OF EVENTS IN REPORT PERIOD

September 17, 1973 - Submitted anticipated increases by CH2M in their Foundation Investigation for the preliminary study of the bridge extension.

September 17, 1973 - Submitted, as requested, a breakdown of Bauer Engineering, Inc. salary-related expenses, overhead and direct costs for the hydraulic analysis of the extension study.

September 20, 1973 - Received a list of plan holders for the foundation load tests.

September 21, 1973 - Submitted, as requested, a breakdown of the Administrator Fee for the Test Pile and Plate Load Test.

## ANTICIPATED FOR NEXT REPORT PERIOD

## Final Design

Bike Path Addition - Work will continue on the bike-path design and on the alteration of the already completed design.

Alternative schemes for the Washington approach ramp to the bike-path will be submitted.

Bridge Extension

Work will continue on the all-structure alternative and the combination of embankment and structure alternatives.

Hydraulic Studies

Work will continue on the hydraulic study.

Foundation Investigation

Water drilling and analysis of samples will continue.

Foundation Tests

Proposed revisions to bottom of casing elevations and pile tip elevations will be submitted. Award of the contract for the Test Pile and Plate Load Foundation Tests will be made.

Very truly yours,

SVERDRUP & PARCEL AND ASSOCIATES, Inc.

R. D. Bane, P.E.
Assistant Vice President

R. Jack Allen

By: R. Jack Allen

cc: Robert N. Bothman

7785 ES Hunter 8

Consult.

**OREGON STATE**
**HIGHWAY DIVISION**

HIGHWAY BUILDING • SALEM, OREGON • 97310

TOM McCALL
GOVERNOR

F. B. Klaboe
Administrator of Highways

September 28, 1973

Sverdrup & Parcel and Associates
Inc.
PO Box 369
505 106th NE
Bellevue, Washington 98004

Attention Mr. R. Jack Allen

Dear Mr. Allen:

Columbia River (I-205) Bridge
Bridge 9555
Profile Drawing

Attached are two copies and a reproducible of the revised profile drawing for the subject structure.

It provides for a 12-foot median for the bike path and barriers, four 12-foot lanes and two 10-foot shoulders in each direction, a 48-foot vertical clearance and 7-foot structural depth over the small boat channel in the south channel, clearance under the airway glide paths, and a 6-foot structural depth with no encroachment over the south shore dike.

The standard structural cross section which you transmitted to us earlier has been forwarded to the State of Washington. That section increased the median width to accommodate the bike path and will have an effect on the flare of the Washington end of the structure because of the proximity of the first interchange north of the structure. The State of Washington is currently revising their alignment accordingly.

NOTED
E. S. HUNTER

RECEIVED
OCT 2 1973
OFFICE OF
ASSISTANT STATE HIGHWAY ENGINEER

A copy of this revision will be sent to you by this office upon completion. If minor adjustments from the attached profile are required for structure expediency, we would be happy to discuss them with you.

Very truly yours,

Walter J Hart

Walter J. Hart
Bridge Engineer

RWE/ag

Attachs.

cc E. S. Hunter
W. M. Foster
R. L. Carroll
T. G. Thompson

8985
Consult.

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Form FHWA 121 (Rev. 5-73)

UNITED STATES GOVERNMENT

# *Memorandum*

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
Box 300
Salem OR 97308

DATE: September 17, 1973

In reply refer to: 10-35-EC2

SUBJECT: Oregon Project I-205-7(2)303
Columbia River Bridge Section
Supplemental Agreement with Sverdrup & Parcel

FROM : G. L. Green, Division Engineer

TO : Mr. F. B. Klaboe, Administrator & State Highway Engineer

We have reviewed the proposed supplement to the Sverdrup & Parcel and Associates Consultant Agreement as submitted with Mr. Hunter's September 4 letter and find it generally satisfactory except for the fee.

We find it difficult to accept the administrator's fee for the prime consultant as shown on the fee schedule. As we have stated several times previously we do not feel that an administrative charge on subconsultant work is a standard cost item. Unless the prime consultant can clearly show he is experiencing some cost not already covered elsewhere in the agreement this charge becomes additional profit often unwarranted. Although the consultant has stated that this is standard practice we have not found this true. In fact we have been sharply criticized for allowing similar charges at an even lesser rate on other consultant agreements.

We realize that this is an extremely awkward time to be complaining with the pile driving project already being advertised. For this reason we approve this supplement with the condition that Federal participation in the administrator's fee be subject to further justification.

for G. L. Green

RECEIVED
STATE HWY ENGR

SEP 19 '73

REFER TO
Orig - Hunter - 7HA

FOR

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**OREGON STATE**
**HIGHWAY DIVISION**

HIGHWAY BUILDING • SALEM, OREGON • 97310

TOM McCALL
GOVERNOR

F. B. Klaboe
Administrator of Highways

September 13, 1973

Sverdrup & Parcel and Associates, Inc.
505 - 106th Avenue NE
P O Box 369
Bellevue, Washington 98004

Attention Mr. R. D. Bane, P.E.
Assistant Vice President

Gentlemen:

Columbia River (I-205) Bridge
Consulting Agreement
Br. 9555

Your letter of September 5, 1973, suggests a revision for the first sentence of Paragraph 3(e) of the first supplement to our consulting agreement. This revision is satisfactory with us.

It is our intent that the environmental impact data to be furnished by October 19, 1973, be that obtained during the usual engineering studies.

An elaborate quantitative evaluation of the environmental items is not required under the terms of this supplement. Information as outlined in Bauer Engineering's letter of August 8, 1973, will be satisfactory.

Very truly yours,
ORIGINAL SIGNED
WALTER J. HART
Walter J. Hart
Bridge Engineer

RWE/ag

cc E. S. Hunter
R. L. Schroeder w/attachs.
R. N. Bothman
P. M. Oakley

RECEIVED
SEP 14 1973

NOTED
R. L. SCHROEDER

SVERDRUP & PARCEL AND ASSOCIATES, Inc.

September 5, 1973

Oregon State Highway Division
Highway Building
Salem, Oregon 97310

Attention: Mr. Walter J. Hart
Bridge Engineer

Gentlemen:

Subject: Proposals for Engineering Services
Columbia River Bridge, I-205
Bridge No. 9555

The draft of the Supplemental Agreement (1st Supplement) covering a preliminary study of a southerly extension to the Columbia River Bridge has been reviewed by us. We find no objection to the draft except for Paragraph 3(e).

The submission of a separate report covering "Environmental Impact Data" was not included in the scope of our proposal. Of course some of the data will be developed in the course of our proposed studies and can be furnished by October 19, 1973.

As discussed in the enclosed letter from Bauer Engineering, Inc., an elaborate quantitative evaluation of certain of the items would require an extensive effort over a far longer period of time than specified in the agreement. It is our understanding however that your intention is for us to furnish only brief qualitative statements for these items, and we therefore propose that the first sentence of Paragraph 3 (e) be revised as follows:

> "Certain data developed in the normal course of the studies described herein shall be compiled and submitted as a brief report entitled, 'Environmental Impact Data'."

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SEP 7 1973
BRIDGE DIVISION

Please advise if this is not in accordance with your wishes for Environmental Impact Data.

Very truly yours,

SVERDRUP & PARCEL AND ASSOCIATES, Inc.

R. D. Bane

R. D. Bane, P. E.
Assistant Vice President

Enclosure

cc: Robert N. Bothman

RECEIVED
SEP 7 1973
BRIDGE DIVISION

BAUER ENGINEERING, INC.
CONSULTING ENGINEERS LAND AND WATER RESOURCES
20 NORTH WACKER DRIVE
CHICAGO, ILLINOIS 60606

TELEPHONE
(312) 641-0210

CABLE ADDRESS
"BAUERENG CHICAGO"

August 8, 1973

Mr. R. D. Bane, P. E.
Assistant Vice President
Sverdrup & Parcel and Associates, Inc.
505 - 106th Avenue N. E.
P. O. Box 369
Bellevue, Washington 98004

Subject: I-205 Columbia River Bridge
Proposed 4,000-foot Southerly Extension
Our File No. 1276.001

Dear Mr. Bane:

In accordance with your letter of authorization dated July 20, 1973, we are proceeding with the hydraulic studies of the subject bridge extension.

Most of the fourteen items requested in the State memorandum from Mr. Gary A. Potter to Mr. R. L. Schroeder, dated July 16, 1973, will be covered in our report. However, for Item 5, Navigational Effects, our report will only cover the hydraulic aspects. Item 9, Foundation Investigation, was not a part of our proposal and would likely be covered by your firm.

Items 11, 12, and 13 were also not included in our proposal. We anticipate little chemical or temperature changes and only minor pollutional effect, possibly some during dredging operations. We will include statements in our report on Items 11, 12, and 13 which relates to the qualitative effects, due to changes in the flow characteristics of the several alternatives. An elaborate quantitative evaluation of these items, such as the stratification of temperatures, the routing of pollution loads caused by disturbance of bottom sediment and their impact on oxygen demand, etc., is beyond the scope of our report as proposed. However, we would be happy to perform these studies if you desire. Large quantities of data would be required to make these evaluations such as bottom sediment sampling, spacial temperature measurements at different times of the year, upstream loading conditions, etc.

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BRIDGE DIVISION

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SVERDRUP & PARCEL
& ASSOCIATES INC.

I hope this has clarified which of the fourteen items we believe should logically be covered in our report. If you would want us to perform any additional work, please let us know.

Sincerely yours,

Clint J. Keifer

Clint J. Keifer
President

CJK/pr

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SEP 7 1973
BRIDGE DIVISION

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Consult.

SVERDRUP & PARCEL AND ASSOCIATES, Inc.
*Consulting Engineers*
505 - 106TH AVENUE N. E.
P. O. BOX 369
BELLEVUE, WASHINGTON 98004

August 31, 1973

RECEIVED
SEP 10 1973
OFFICE OF
ASSISTANT STATE HIGHWAY ENGINEER

Oregon State Highway Division
Highway Building
Salem, Oregon 97310

Attention: Mr. Walter J. Hart
Bridge Engineer

NOTED
E. S. HUNTER

Gentlemen:

Subject: Progress Report No. 44
Columbia River Bridge No. 9555

This report covers the period from August 18, 1973, to August 31, 1973.

PROGRESS TO DATE

Final Design Under Original Agreement

We estimate that Phase B of the project is 55.1% complete.

An earthquake analysis and report have been submitted to the State. Design of prestressing from the Oregon abutment to Pier 15 for the East Bridge has been completed.

Bike Path Addition

Alteration of the already completed design to include the addition of the bike path has been started.

Bridge Extension

Preliminary design of the all-structure alternative is progressing. A plan showing span lengths has been submitted to the State. We estimate that the bridge extension study is 8.3 percent complete.

Hydraulic Studies

Hydraulic Studies for the 4,000 foot bridge extension are progressing and we estimate these studies to be 5 percent complete.

NOTED
R. W. ELLISON

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SEP 7 1973
BRIDGE DIVISION

### Foundation Investigation

Land mobilization complete. One water drill rig mobilized and a second water rig nearly mobilized. Approximately 1,046 linear feet of land and 60 linear feet of water drilling have been completed. One hundred and ninety split tube samples and 11 undisturbed samples have been taken.

### Foundation Tests

The test pile and plate load test specification have been submitted, together with a proposal for engineering services in conjunction with this program.

## CHRONOLOGY OF EVENTS IN REPORT PERIOD

August 21, 1973 - Submitted a revised plan entitled Test Pile and Load Test Locations.

August 22, 1973 - Received topographic material for Government Island and sounding data for the south channel.

August 22, 1973 - Received a request to furnish a typical roadway section for a bike path located in the median.

August 23, 1973 - Received corrections to the topographic material previously received.

August 28, 1973 - Received alignment and profile data forwarded from the State of Washington.

## ANTICIPATED FOR NEXT REPORT PERIOD

### Final Design

Bike Path Addition - Work will continue on the bike path design and on the alteration of the already completed design.

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BRIDGE DIVISION

August 31, 1973

Bridge Extension

Work will continue on the all-structure alternative and the combination of embankment and structure alternatives.

Hydraulic Studies - Work will continue on the hydraulic study.

Foundation Investigation - Land and water drilling will continue.

Foundation Tests

Invitation for Bid for the Test Pile and Plate Load Foundation Tests will be issued.

Very truly yours,

SVERDRUP & PARCEL AND ASSOCIATES, Inc.

R. D. Bane

R. D. Bane, P.E.
Assistant Vice President

cc: Robert N. Bothman

RECEIVED
SEP 7 1973
BRIDGE DIVISION

8405
Consult.

**OREGON STATE**
**HIGHWAY DIVISION**

HIGHWAY BUILDING • SALEM, OREGON • 97310

TOM McCALL
GOVERNOR

F. B. Klaboe
Administrator of Highways

August 30, 1973

NOTED
E. S. HUNTER

Mr. R. Jack Allen
Sverdrup & Parcel and Associates, Inc.
P. O. Box 369
Bellevue, WA 98004

Dear Mr. Allen:

Proposals for Engineering Services
Columbia River Bridge, I-205
Bridge No. 9555

Thank you for the items you sent with your letter of August 28, 1973 which was received today. Everything was in order except for the cost information sent by Bauer Engineering.

Bauer Engineering shows a total personnel service cost of 2.25 times the direct payroll cost. This factor is considered escessive and cannot be justified.

Please ask the subconsultant to furnish us with an itemized breakdown of his salary-related expenses and overhead costs shown as a percentage of the direct salary cost. If this could be outlined in the same manner as you outlined your overhead costs, it would be appreciated. A review of the items included in the overhead costs may enable us to justify the factor to the Federal Highway Administration.

Our Hydraulics Engineer has also requested that Bauer Engineering provide an estimate for each of the items shown as a direct cost (travel and subsistance, computer time,and printg costs for the final report).

I hope that Bauer Engineering will be able to furnish us with this information as soon as possible.

Very truly yours,

Walter J. Hart
Bridge Engineer
By

R. J. Wright
Bridge Office Engineer

RECEIVED
AUG 31 1973
OFFICE OF
ASSISTANT STATE HIGHWAY ENGINEER

RJW:dh
cc E. S. Hunter
R. N. Bothman
R. Hacek
R. Lenz /w/ attach.

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Consult.

SVERDRUP & PARCEL AND ASSOCIATES, Inc.
*Consulting Engineers*
505 - 106TH AVENUE N. E.
P. O. BOX 369
BELLEVUE, WASHINGTON 98004

August 23, 1973

NOTED
E. S. HUNTER

Oregon State Highway Division
Highway Building
Salem, Oregon 97310

Attention: Mr. Walter J. Hart
Bridge Engineer

RECEIVED
AUG 28 1973
OFFICE OF
ASSISTANT STATE HIGHWAY ENGINEER

Gentlemen:

Subject: Progress Report No. 43
Phase B - Final Design
Columbia River Bridge No. 9555

This report covers the period from July 21, 1973 to August 17, 1973. We estimate that Phase B of the project is 54.7 percent complete.

PROGRESS TO DATE

An earthquake analysis and report have been submitted to the State. Details of precast concrete alternate for the pier capitals have been submitted. Plans showing location and details of expansion hinges in the superstructure have been submitted.

Design of prestressing from the Oregon abutment to Pier 15 for the East Bridge has been completed. Hinge and fender design has been completed.

The test pile and plate load test specifications have been submitted to OSHD, together with a proposal for engineering services in conjunction with this program.

Hydraulic studies and subsurface investigation for the preliminary study of the 4,000 foot bridge extension are underway. Preliminary design of the all-structure alternative has been started and a plan showing span lengths has been submitted.

CHRONOLOGY OF EVENTS IN REPORT PERIOD

July 24, 1973 - Submitted an explanation of the Administration Fees attached to our Engineering Proposal dated July 6, 1973.

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AUG 27 1973
BRIDGE DIVISION

August 2, 1973 - Received authority to revise the design completed to date and alter the criteria for the remaining work to include the addition of a bike path. Also we were requested to comment on pier types requiring other than conventional cofferdam construction, previously precluded from consideration because of environmental objections.

August 7, 1973 - Received a request to furnish specific documentation of the fee schedule attached to our Engineering Proposals dated July 6, 1973 and June 20, 1973.

August 9, 1973 - Submitted a pre-investigation letter report predicting subsurface conditions for the bridge extension.

August 15, 1973 - Submitted a revision to the pre-investigation letter report.

August 15, 1973 - Submitted span layout and pier orientation for an all-structure extension.

ANTICIPATED FOR NEXT REPORT PERIOD

Foundation Investigation - Land and water drilling will continue.

Hydraulic Studies - Work will continue on the hydraulic study.

Preliminary Design - Work will continue on the all-structure alternative and the combination of embankment and structure alternatives will be started.

Final Design - Work will begin to alter the already completed design to include the approved bike path.

Very truly yours,

SVERDRUP & PARCEL AND ASSOCIATES, Inc.

R. D. Bane

R. D. Bane, P.E.
Regional Manager

cc: Robert N. Bothman

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AUG 27 1973
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**OREGON STATE**
**HIGHWAY DIVISION**

HIGHWAY BUILDING • SALEM, OREGON • 97310

August 21, 1973

NOTED
E. S. HUNTER

Mr. Ray Bane
Assistant Vice President
Sverdrup & Parcel & Associates, Inc.
P. O. Box 369
Bellevue, WA 98004

Dear Mr. Bane:

Columbia River Bridge, I-205
Bridge No. 9555

The incorporation of a bike path in the median of the Columbia River Bridge will require the recalculation of the geometry for the interchanges at each end of the structure. To facilitate this work it will be necessary to have a typical roadway section showing the median, rail, and roadway widths and any other dimensions effecting this alignment. Would you please send us a reproducible drawing showing this information.

Very truly yours,

ORIGINAL SIGNED
WALTER J. HART
Walter J. Hart
Bridge Engineer

PMO:dh

cc E. S. Hunter

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AUG 22 1973
OFFICE OF
ASSISTANT STATE HIGHWAY ENGINEER

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Consult.

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**UNITED STATES GOVERNMENT**

# *Memorandum*

**DEPARTMENT OF TRANSPORTATION**
FEDERAL HIGHWAY ADMINISTRATION
Box 300
Salem OR 97308

DATE: August 8, 1973

In reply refer to: 10-35-EC2

SUBJECT: Oregon Project I-205-7(2)303
Columbia River Bridge
Supplement to S & P Agreement

FROM : G. L. Green, Division Engineer

TO : Mr. F. B. Klaboe, Administrator & State Highway Engineer
Salem, Oregon

This is to confirm that tentative authorization to proceed with the preliminary study of a southerly extension of the I-205 Columbia River Bridge by the consultant firm Sverdrup & Parcel and Associates was granted during the July 17 conference. This authorization is conditional on the development of a supplement to the existing consultant agreement that is in compliance with Federal-aid requirements.

for G. L. Green
Malach

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AUG 10 1973
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ASSISTANT STATE HIGHWAY ENGINEER

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8-10-73
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E. S. HUNTER

cc Hart
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R. L. SCHROEDER

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**OREGON STATE
HIGHWAY DIVISION**

HIGHWAY BUILDING • SALEM, OREGON • 97310

TOM McCALL
GOVERNOR

**F. B. Klaboe**
Administrator of Highways

NOTED
E. S. HUNTER

August 6, 1973

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AUG 7 1973
OFFICE OF
ASSISTANT STATE HIGHWAY ENGINEER

Mr. Ray Bane, P.E.
Assistant Vice President
Sverdrup & Parcel & Associates, Inc.
P. O. Box 369
Bellevue, WA 98004

Dear Mr. Bane:

copy

Proposals for Engineering Services
Columbia River Bridge, I-205
Bridge No. 9555

On July 26, 1973 Mr. Wright of our office discussed with you the necessity for further documentation of the fee schedule for engineering services under the bridge extension and test pile supplements to your design services contract. These are the proposals contained in your letters of July 6, 1973 and June 20, 1973.

Specifically, we have the following comments on the two proposals:

Bridge Extension Study

Supplemental Agreement No. 1

1. Preliminary Report

   Generally the fee schedule set forth in the proposal for this portion of the work is satisfactory. A list of the items that comprise the overhead- and salary-related expenses expressed as a percentage of the salary cost will be required.

2. Foundation Investigation

   The items of work to be done by $CH_2M$/Hill should be shown separately and their name should be listed as a subconsultant. The administrator's fee incurred by Sverdrup & Parcel for this portion of the work should be indicated. The Federal Highway Administration has indicated that the justification of the administrator's fee as outlined in your letter of July 24, 1973 is satisfactory. An explanation of the increased costs of items (b), (c), and (i) of the Foundation Investigation compared to the similar items in the original agreement will be necessary.

3. Hydraulic Study

Bauer Engineering should be shown as a subconsultant in the study and report of the hydraulic phase of the work. The administrator's fee incurred by Sverdrup & Parcel should be shown. The proposal of Bauer Engineering indicates payment to them based on a cost-plus basis. If this is the case, fee determination data similar to that used for the preliminary report will be necessary which shows the rates of the salaried positions with the estimate based on cost plus a fixed fee. The overhead- and salary-related expenses for Bauer Engineering should be shown as a percentage of the salary cost and nonlabor direct expenses should be shown separately and itemized.

Test Pile and Plate Load Test

Supplemental Agreement No. 2

1. Show the items of work to be done by $CH_2M$/Hill separately as a subconsultant.

2. A further breakdown of the unit prices and lump sum items is necessary on the basis of salaries, salary-related expenses, overhead, and nonlabor expense.

3. A further breakdown of the administrator's fee is necessary to show what salaries are involved and the amount of profit and overhead.

Enclosed is a current version of the Federal Highway Administration's PPM 40-6 setting forth the requirements for back-up data for fees for engineering services. Rough draft copies of the two supplemental agreements for your review are enclosed. Please return one copy of each with any suggested changes or additions indicated.

Very truly yours,

ORIGINAL SIGNED
R.W. ELLISON
Walter J. Hart
Bridge Engineer

WJH:dh
Enclosure

cc E. S. Hunter
R. N. Bothman
P. L. Hatcher

8905

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Consult

WASHINGTON STATE
HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS

Highway Administration Building
Olympia, Washington 98504 (206) 753-6000

Daniel J. Evans - Governor
G.H. Andrews - Director

August 1, 1973

Mr. A. E. Johnson
Deputy State Highway Engineer
Oregon State Highway Division
State Highway Building
Salem, Oregon 97310

Supplemental Engineering Agreement
Proposed Columbia River I-205
Bridge Extension

Dear Mr. Johnson:

This is to acknowledge the copy of your letter of July 19 advising the consultant, Sverdrup and Parcel, of their authorization to proceed with the Supplemental Engineering Agreement covering the proposed Columbia River I-205 Bridge Extension.

We accept the copy of this letter as being informational only and take the position that any increased costs covered by this supplement are to be borne solely by the Oregon State Highway Division inasmuch as we have not had an opportunity to review the supplement in advance, or be made aware of any benefits to the State of Washington which might accrue from this supplement.

If in fact the State of Oregon feels otherwise, we will of necessity expect to be informed of your rationale.

Very truly yours,

G. H. ANDREWS
Director of Highways

By: W. M. FOSTER
Assistant Director for
Highway Development

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E. S. HUNTER

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AUG 6 1973
OFFICE OF
ASSISTANT STATE HIGHWAY ENGINEER

GHA:fmd
WMF

cc: G. H. Andrews
R. L. Carroll
C. S. Gloyd
W. H. Hartwell

John N. Rupp Chairman Seattle — Harold Walsh Everett — Baker Ferguson Walla Walla — A.H. Parker Bremerton — Lorna Ream Spokane — Lorenz Goetz secretary

8905

Consult.

July 19, 1973

Mr. R. D. Bane, P.E.
Assistant Vice President
Sverdrup & Parcel & Associates, Inc.
P. O. Box 369
Bellevue, Washington 98004

bc F. B. Klaboe
E. S. Hunter (enc.)
R. L. Schroeder "
W. J. Hart
R. N. Bothman (enc.)

Dear Mr. Bane:

Supplemental Engineering Agreement
Proposed Columbia River I-205 Bridge Extension

The proposal for a preliminary study of a southerly 4,000-foot extension of the I-205 Columbia River Bridge across Government Island and the existing south channel as outlined in your July 6 letter, is satisfactory. You may consider this letter as authorization to proceed with the study. An amendment to our existing agreement to cover this phase of the work will soon be forwarded to you for your signature.

In accordance with our discussion, it is requested that this study include the feasibility of a hydraulic fill under the embankment alternate. The effect of channel dredging for fill material and the liability incidental to such dredging and construction of a highway fill should be considered.

Under Item 4(a) of your July 6 proposal, you indicated the hydraulic studies will be based on maintaining nearly the same division of flow between the north and south channels as presently exists at all possible stages and discharges. We believe a maximum degree of flexibility should be permitted in this phase of the study. We would look to the hydraulic study to address itself to the consequences of any attempts to alter this division of flow.

Very truly yours,

WJH:dh ja

A. E. Johnson
Deputy State Highway Engineer

cc/enc. Mr. W. M. Foster
Washington Department of Highways

cc Mr. R. L. Carroll
Washington Department of Highways

Mr. H. A. Schell
Federal Highway Administration

SVERDRUP & PARCEL AND ASSOCIATES, Inc.
*Consulting Engineers*
505 - 106TH AVENUE N. E.
P. O. BOX 369
BELLEVUE, WASHINGTON 98004

July 6, 1973

Oregon State Highway Division
Highway Building
Salem, Oregon 97310

Attention: Mr. Walter J. Hart
Bridge Engineer

Gentlemen:

Subject: I-205 Columbia River Bridge, Bridge 9555
Engineering Proposal
Study of Bridge Extension

We are pleased to submit this proposal for services to be performed for the subject project as requested by your letter dated June 14, 1973. The services include a preliminary study and report for a southerly extension to the Columbia River Bridge from the currently planned terminus near Station 85+00 to a connection with the airport interchange near Station 126+00.

This proposal supersedes our proposal dated May 22, 1973, and includes studies of the extension both on structure and on a combination of structure and earth embankment. The studies will be based on present topography in the south channel with consideration given to the possible future fill for a new airport runway.

The studies will include, but not be restricted to, the following:

1. Develop a configuration with the extension all on structure.
2. Develop configurations carrying the extension on a combination of embankment and structure.
3. Perform such foundation investigation as required to establish design criteria. The minimum exploration will be five borings on Government Island, nine borings in the south channel, three borings on the south river bank, appropriate sampling and testing. We will employ the firm of Cornell, Howland, Hayes & Merryfield for this investigation.

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JUL 9 1973
BRIDGE DIVISION

4. Perform such hydraulic studies as are necessary to establish the following objectives with the various combinations of structure and embankment:

    (a) To maintain nearly the same division of flow between the north and south channels as presently exists at all possible stages and discharges.

    (b) Provide for equivalent sediment transportation capacity so as not to cause scour or deposition detrimental to the structure or river banks.

    (c) Provide the same flood-passing ability as presently exists without excessive backwater effects.

    We will employ the firm of Bauer Engineering, Inc., for this analysis.

5. Furnish twenty-five copies of written reports which will include, but not be restricted to, the following:

    (a) Evaluation of alternative layouts for the extension.

    (b) Construction costs of alternative layouts.

    (c) Conceptual drawings of alternative layouts.

    (d) A design and construction timetable.

    (e) Hydraulic studies.

    (f) Foundation investigation.

We propose to provide those services required under Item 1, Preliminary Report Complete, of the attached Fee Schedule, for a lump sum fee of $78,450.00 and to provide those services required under Item 2(a), Administrator Fee for Foundation Investigation, for a lump sum fee of $4,000.00. Items 2(b) through 2(i) of the attached schedule, all in connection with the

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JUL 9 1973
BRIDGE DIVISION

Foundation Investigation, are unit prices and lump sum amounts as quoted by Cornell, Howland, Hayes & Merryfield. The total amount shown on the attached schedule for Items 2(b) through 2(i) is $81,420.00 based on a total of 2,500 lineal feet of drilling.

For the Hydraulic Study, we propose to provide those services required under Item 3(a), Administrator Fee, for a lump sum fee of $1,400.00. Item 3(b) of the attached schedule, for the Hydraulic Study, is the estimated total fee of $27,000.00 as quoted on a unit price basis by Bauer Engineering. A copy of the Bauer Engineering proposal is attached.

Two sheets of fee determination for Item 1 are also attached showing estimated manhours, salary rates, direct costs, overhead, profit, and cost of consultants to be employed by our firm. In addition to the firms employed for the foundation investigation and the hydraulic studies, we will employ the firm of Broome, Selig, & Oringdulph for architectural services, and Ben C. Gerwick, Jr., as consultant in connection with construction aspects of the studies.

This proposal is based on the following assumptions:

1. The studies will be based on existing topography with consideration given to the possible future airport fill in the south channel and possible future dredging in the north channel.
2. Pier shapes and superstructure concepts are to remain as currently proposed except the recommended method of superstructure construction. Precast, segmental, cantilever construction may be changed in some areas either to cast-in-place construction supported on falsework, or to cast-in-place, segmental, cantilever construction.
3. All profiles and horizontal control are to be furnished by the State.
4. The State will obtain all rights of way required for the project.
5. The State will obtain all utility permits, U. S. Department of Transportation permits and other agreements necessary for the project.

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6. The State will perform preliminary field surveys, establish horizontal and vertical alignment and will furnish to Consultant the following: A reproducible map, showing horizontal controls, restricted areas, roadway widths and topography for the project; profiles showing vertical controls and alignment; a utilities map, and any other data in State's files that might be applicable to Consultant's work.

7. The State will establish centerline monuments along the centerline of the bridge, specific monuments on the south bank of the river and at least one additional monument on the south bank to provide control points adequate to permit the foundation exploration subcontractor to properly position drill barges as he deems necessary.

It is anticipated that this study and report will be completed within five months after receipt of notice to proceed. We are available to discuss the proposal at your convenience.

Very truly yours,

SVERDRUP & PARCEL AND ASSOCIATES, Inc.

R. D. Bane

R. D. Bane, P. E.
Assistant Vice President

Attachments

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## FEE SCHEDULE

| | | Unit & Quantity | Unit Price | Amount | |
|---|---|---|---|---|---|
| 1. | Preliminary Report, Complete | L.S. | — | | $ 78,450 |
| 2. | Foundation Investigation | | | | |
| (a) | Administrator Fee | L.S. | — | $ 4,000 | |
| (b) | Foundation Report | L.S. | — | 3,500 | |
| (c) | Mobilization and Demob. | L.S. | — | 16,500 | |
| (d) | Land Drilling | 1,300 L.Ft. | 19.00 | 24,700 | |
| (e) | Water Drilling | 1,200 L.Ft. | 23.50 | 28,200 | |
| (f) | Split Tube Sampling | 300 only | 6.00 | 1,800 | |
| (g) | Analysis of Split Tube Samples | 35 only | 60.00 | 2,100 | |
| (h) | Undisturbed Samples | 8 only | 15.00 | 120 | |
| (i) | Analysis of Undisturbed Samples | L.S. | — | 4,500 | |
| | Subtotal - Foundation Investigation and Report | | | | 85,420 |
| 3. | Hydraulic Study | | | | |
| (a) | Administrator Fee | L.S. | — | $ 1,400 | |
| (b) | Study and Report | Reimbursable | | 27,000 | |
| | Subtotal - Hydraulic Stury | | | | 28,400 |
| | Total | | | | $ 192,270 |

Items 1, 2(a), 2(b), 2(c), 2(i) and 3(a) are fixed quantity items, paid for on a lump sum basis.

Items 2(d), 2(e), 2(f), 2(g), 2(h) and 3(b) are variable quantity items. Quantity paid for will be the actual quantity of work performed.

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## FEE DETERMINATION

## ITEM 1, PRELIMINARY REPORT COMPLETE

| Classification | | Man Months | | | | | Total | Ave. Monthly Rate | Base Salary |
|---|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | | | |
| P-8 | Project Manager | ½ | ½ | ½ | ½ | ½ | 2½ | $1,940 | $ 4,850 |
| P-6 | Project Engineer and Group Leaders | 1 | 1½ | 1 | 1 | 1 | 5½ | 1,630 | 8,960 |
| P-5 | Architects and Engineers | 1 | 1½ | 2½ | 2½ | 1 | 8½ | 1,380 | 11,730 |
| P-4 | Designers and Estimators | | | | 1 | 1 | 2 | 1,225 | 2,450 |
| P-1 | Draftsmen | | | 1 | 1 | ½ | 2½ | 860 | 2,150 |
| | Total | 2½ | 3½ | 5 | 6 | 4 | 21 | | $30,140 |

Total Manhours Required: 21 x 173-1/3 = 3,640

Total Base Salary Cost: $30,140

Average Hourly Rate: $8.28

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## FEE DETERMINATION

## ITEM 1, PRELIMINARY REPORT COMPLETE

### Salaries and Overhead

| | |
|---|---|
| Base Salary Cost 3,640 MH x 8.28/Hr. | $ 30,140 |
| Salary Related Expenses 22.5% x $30,140 | 6,780 |
| Productive Salary Cost | 36,920 |
| Overhead 60% x $36,920 | 22,150 |
| Total Salaries and Overhead | $ 59,070 |

### Direct Costs

| | |
|---|---|
| Computer Time | $ 2,000 |
| Travel and Subsistence | 2,000 |
| Report Printing, Telephone | 2,100 |
| Total Direct Costs | $ 6,100 |

| | |
|---|---|
| **Profit** | 9,780 |
| Total Above | $ 74,950 |

### Subcontracts

| | |
|---|---|
| Architectural Services | $ 1,500 |
| Construction Aspects of Design | 2,000 |
| Total Subcontracts | $ 3,500 |
| Total Lump Sum - Item 1 | $ 78,450 |

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BAUER ENGINEERING, INC.
CONSULTING ENGINEERS LAND AND WATER RESOURCES
20 NORTH WACKER DRIVE
CHICAGO, ILLINOIS 60606

TELEPHONE
(312) 641-0210

"BAUERENG CHICAGO"

June 14, 1973

Mr. R. D. Bane, P. E.
Assistant Vice President
Sverdrup & Parcel and Associates, Inc.
505 - 106th Avenue N.E.
P. O. Box 369
Bellevue, Washington 98004

Subject: Proposal for Engineering Services
Columbia River Hydraulic Studies
Our File No. 1276.001

Dear Mr. Bane:

We are pleased to submit a proposal to perform hydraulic engineering services in connection with the proposed 4000-foot extension of the I-205 Columbia River Bridge. Since Bauer Engineering, Inc. has made extensive studies on the Columbia River in the vicinity of the proposed bridge in our work for the Port of Portland, much of the background information needed for this study is in our file.

## GENERAL DESCRIPTION OF STUDY

It appears appropriate to use the same basic criteria for the river conditions as used in the airport expansion study which are as follows:

1. To maintain nearly the same division of flow between the north and south channels as presently exists at all possible stages and discharges.
2. Provide for equivalent sediment transportation capacity so as not to cause scour or deposition detrimental to the structure or river banks.
3. Provide the same flood-passing ability as presently exists without excessive backwater effects.

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& ASSOCIATES INC.

It is proposed that our hydraulic studies include backwaters and sediment transport through both the north and south channels; the necessary armor design which will consider the tractive forces resulting from both longitudinal and spiral currents; the resisting forces arising from slope of bank, rock size, shape and density; the effect of the different stream bed material comprising the north and south banks; and the effect of cross currents between the north and south channels during high stage. These studies will be applied to a number of alternatives, which are as follows:

1. The present conditions of the river without the proposed bridge.
2. The proposed bridge and extension all on piers.
3. Bridges on piers across both the north and south channels, and the length across Government Island on embankment.
4. Several alternatives having the bridge extension on embankment with various size openings to pass flood flows through the south channel.

It is proposed to furnish a preliminary evaluation of the several viable alternatives 45 days after notice to proceed, along with our recommendations. After your review and evaluation, possibly from the standpoint of construction requirements and costs, the studies will be finalized and a report prepared (30 copies). It is estimated that these final studies along with the preparation of the report will require an additional 30 days.

## PERSONNEL ASSIGNED AND BUDGET

Mr. Cheng Yeng Hung, who performed most of the airport expansion study, would be assigned as project manager, and would be assisted by Dr. William J. Bauer and Mr. Clint J. Keifer as required. In addition, sufficient engineers and draftsmen would be assigned as needed. The following is an estimate of the man-days required for the study:

| | |
|---|---|
| Principal | 2 man-weeks |
| Project Manager | 6 man-weeks |
| Engineers | 12 man-weeks |
| Draftsmen | 6 man-weeks |
| Total....... | 26 man-weeks |

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Based on the above, it is estimated that a total fee including travel, computer and other expenses would not exceed $27,000. We propose to do this work on a cost-plus basis in accordance with our attached Form G-20. We would not proceed with any work that would result in a billing in excess of the $27,000 estimate unless we are given authorization by you to do so.

Again, we appreciate the opportunity to submit this proposal for your consideration, and we are looking forward to serving you. Should you have any questions regarding our proposal, please contact us.

Sincerely yours,

Clint J. Keifer

Clint J. Keifer
President

CJK/pr

Attachment - Form G-20

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# Schedule of Charges

# BAUER ENGINEERING, INC.

Compensation of Bauer Engineering, Inc. for its professional services is based upon the following elements which are computed as set forth below:

## PERSONNEL CHARGES

Charges for all personnel services are computed by multiplying by 2.75 the total direct salary costs of the time charged by each person to a project. The total direct salary cost shall be a sum equal to the direct payroll costs of each person charging time to the project (computed on an average hourly rate). Direct payroll cost does not include payroll taxes, insurance incident to employment, holidays, sick leave, vacations, etc. The time of a principal devoted to the project is charged at an assigned billing rate.

## DIRECT COSTS

Charges for services, equipment and facilities not furnished directly by Bauer Engineering, Inc., and any unusual items of expense not customarily incurred in our normal operations, are computed on the basis of cost, plus 15 per cent. Such items include:

Rental and operation of drilling equipment.
Erecting facilities for the performance of field tests.
Furnishing and driving test piling.
Shipping charges for equipment or samples
Subsistence.
Fares of public carriers.
Rental vehicles.
Printing and photographic reproductions.
Long distance communications.
Special fees, insurance, permits and licenses.
Services of special consultants and testing laboratories.
Services of explosives technicians.
Surveying services.
Aerial mapping services.

## EQUIPMENT CHARGES

Charges for those items of equipment not customarily provided by a consulting engineering office ...

| | |
|---|---|
| Laboratory equipment: | At stated rental rates. |
| Automobiles: | At $0.15 per mile. |
| Computer: | At stated hourly rates. |

## BILLING

Statements will be issued every four weeks, payable upon receipt, unless otherwise agreed.

Interest of 1 1/2% per month (but not exceeding the maximum rate allowable by law) will be payable on any amounts not paid within 30 days; payments thereafter to be applied first to accrued interest and then to the principal unpaid amount. Any attorney's fees or other costs incurred in collecting any delinquent amount shall be paid by the client.

---

When outside the United States, employees' total direct salary cost will be increased by the premium customarily paid by other organizations for work at that location.

Time spent in either local or inter-city travel, when travel is in the interest of the work, will be charged for in accordance with the foregoing schedule; when traveling by public carrier, a maximum charge of eight hours per day will be made.

In the event a client makes a claim against Bauer Engineering, Inc., legal or otherwise, for any alleged error, omission or other act arising out of the performance of our professional services, and the client fails to prove such claim, then the client shall pay all costs incurred by Bauer Engineering, Inc. in defending itself against the claim.

In the event the client requests termination of the work prior to completion of a report, we reserve the right to complete such analyses and records as are necessary to place our records in order and, where considered by us necessary to protect our professional reputation, to complete a report on the work performed to date. A termination charge to cover the cost thereof in an amount not to exceed 30 per cent of all charges incurred up to the date of the stoppage of work may be made at the discretion of Bauer Engineering, Inc.

Bauer Engineering, Inc. makes no warranty or representation, either expressed or implied, and none is included or intended in our proposals, contracts or reports, except that our services are performed, within the limits prescribed by our clients, with the usual thoroughness and competence of the engineering profession. Our liability to the client for injury or damage to persons or property arising out of work performed for the client and for which legal liability may be found to rest upon us will be limited to our insurance coverage which varies according to type of coverage, but in all cases being at least $100,000 per person and $500,000 per accident.

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Form G-20
Rev. 3/1/72

8905 E S Hunter 8

Consult.

FORM E-30

# OREGON STATE HIGHWAY DIVISION

INTER-DEPARTMENT CORRESPONDENCE

Salem, Oregon

DATE July 27, 1973

TO Memorandum to the File

ORIGINAL SIGNED
R.W. ELLISON

FROM R. W. Ellison
Bridge Administration Engineer

NOTED
E. S. HUNTER

SUBJECT Columbia River (I-205) Bridge
Br. 9555
Meeting with Consultant
Status of Design

On July 17, 1973, a meeting was held in the office of Mr. E. S. Hunter, State Highway Building, Salem, Oregon, regarding the design status of the subject structure.

As indicated on the attached sheet, those in attendance were from Sverdrup & Parcel and Associates, Inc., consulting engineer, the Federal Highway Administration, and the Oregon State Highway Division.

The consultant discussed work, in general, up to the present time, and indicated that work under the original design agreement is approximately 54% complete, and is one year behind schedule due to revisions and delays caused by the Portland International Airport expansion question.

The design could be completed in eleven months without consideration of the bike path or the proposed 4000-foot southerly extension. An additional three months would be required for the bike path design and five months will be required for a preliminary study of the extension.

The FHWA indicated belief that the bike path on the structure will be approved by their office in the near future. They also indicated that approval of the environmental impact statement could possibly be received in March depending on necessary processing of Section 4-f.

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ASSISTANT STATE HIGHWAY ENGINEER

The impact statement is being prepared by Howard, Needles, Tammen, and Bergendoff, as a consultant to the State.

It was the general consensus that a contract for this bridge project cannot be awarded until the spring of 1975 at the earliest.

During discussions of the alternates for the southerly extension of the structure, the FHWA requested consideration of the use of a roadway fill for a portion of this extension, and the consideration of the effects of dredging the south channel to obtain material for the fill. The effects of such an alternate on maintaining the present division of flow between the main and south channels would require study as would the maintenance responsibility for keeping the dredged channel open.

The State indicated a letter would be written to the consultant authorizing them to proceed immediately with the study of the extension. The consultant stated he would be able to supply initial information required for the EIS within ninety days of the notice to proceed. The FHWA indicated their tentative approval of the proposed extension study.

RWE/ag

cc A. E. Johnson
E. S. Hunter
R. L. Schroeder
H. A. Schell
E. J. Valach
R. Bane
R. C. West
J. Allen
D. Byard
W. J. Hart

8905
Consult.

June 14, 1973

Mr. Ray Bane, P.E.
Assistant Vice President
Sverdrup & Parcel & Associates, Inc.
P. O. Box 369
Bellevue, WA 98004

Dear Mr. Bane:

Engineering Study of Bridge Extension
Columbia River Bridge, I-205
Bridge No. 9555

On May 3, we requested a proposal for engineering services for study of a 4,000-foot structure extension to the proposed Columbia River Bridge. Subsequent review has indicated that this study should be expanded to include an earth embankment alternate. This alternate would call for a fill section with a structure over the small boat channel in the existing south channel. The decision to expand the study area to include the embankment alternate has altered the requirements for the previous structure extension study and the seven items in your May 22 proposal should be modified as follows:

1. The re-evaluation of the span lengths is probably not needed for the purpose of this study and, in any case, should be limited to only that necessary to obtain a reasonable cost comparison between structure versus embankment and structure for the 4,000-foot extension.

2. The evaluation of the pier orientation for both existing and future topographic conditions will be necessary to the extent it imposes major cost influences and hydraulic considerations.

3. We believe the effect of the future fill on the pier design will have a minimal effect on the structure cost. This aspect could more effectively be investigated after a decision is made on embankment versus structure.

4. The study of the ramps and main line structure widening to accommodate the Airport Interchange should extend only as far as necessary to establish major cost influences.

5. Since you have previously furnished an approximate cost for the bike path on the structure extension, further effort on this item should not be required at this time.

6. The foundation study for the area of the 4,000-foot extension should proceed as planned. It is our intention to proceed with the foundation test pile and load test program over the full 11,000 feet as soon as the revised proposal for this work is received and reviewed.

7. Twenty-five copies of a written report containing your evaluation and recommendations on structure versus embankment and structure over the length of the extension will be required.

   (a) The recommendation as to structure layout should be kept general until the decision is made on structure versus embankment.

   (b) A detailed cost breakdown will not be required at this time.

   (c) A general conceptual drawing is all that will be necessary at this time. Details need not be investigated.

   (d) A design and construction timetable should be included in the report.

   (e) Color renderings will not be necessary at this time.

The study of the partial embankment and structure should be made on the assumption of existing topographic conditions. The south channel will remain in its present position. The new channel will not be cut through Government Island at this time.

The firm of Bower & Associates has previously made a hydraulic study of the effect of the proposed airport expansion into the river. In order to take advantage of their previous experience in this area, it is requested you engage their services to do such hydraulic studies as are necessary.

I am enclosing four copies of the alignment, grades, and typical sections of the main line and ramps at the Airport Interchange and the relocated Marine Drive, and four copies of soundings in the south channel. If you are in need of any further information or have any questions on the items discussed above, please contact this office.

Since the nature of the study of the 4,000-foot extension has been substantially altered over that previously discussed, please furnish us with a revised proposal for engineering services for a study of the structure versus fill and structure over the length of the extension.

Very truly yours,

A. E. Johnson
Deputy State Highway Engineer

Enc.

cc Mr. Glen Green
Division Engineer
Federal Highway Administration
Salem, OR 97308

bc F. B. Klaboe
E. S. Hunter
H. S. Coulter
R. L. Schroeder
W. J. Hart
R. N. Bothman

WJH:dh/AEJ:ja

May 3, 1973

Mr. Ray Bane
Assistant Vice President
Sverdrup & Parcel & Associates, Inc.
P. O. Box 369
Bellevue, Washington 98004

Dear Mr. Bane:

Columbia River Bridge
I-205 Highway
Engineering Study of Bridge Extension

Recent decisions of the Port of Portland concerning the expansion of the airport have altered conditions at the I-205 crossing of the Columbia River. The Port's present plan is to extend only the south runway; no work will be done at this time on the north runway extension with its accompanying fill into the Columbia River.

We therefore request you to proceed with an engineering study of a 4,000-foot extension to the presently proposed structure. As a first step, we will need from you a cost proposal to do the engineering study of the extension. This proposal should follow the same format as your previous proposals for engineering services.

Structure type should be compatible with the main span type already approved. The study should include a revised schedule of design and construction time and construction costs. It should include alternates, both with and without a bicycle path. You will be furnished plans indicating both horizontal and vertical alignments. The study should be based on topographic conditions as they presently exist. Consideration must also be given to the possible future fill if the north runway extension should ever become an actuality. Soundings are presently being taken in the area of the south channel. This information will be furnished to you as soon as it is available.

We anticipate being able to proceed with the load test and test pile program as originally proposed within the next two months. Since additional foundation exploration will probably be required over the length of the 4,000-foot extension, it would appear desirable to include this work with the previously contemplated test program. We would appreciate your recommendations on the extent of such additional foundation exploration.

Very truly yours,

A. E. Johnson
Deputy State Highway Engineer

cc Mr. Glen L. Green
Division Engineer
Federal Highway Administration
Salem, OR 97308

bc F. B. Klaboe
E. S. Hunter
H. S. Coulter
R. L. Schroeder
W. J. Hart
R. N. Bothman

WJH:dh ja

8405

8

Form FHWA 121 (Rev. 7-72)

Consult

UNITED STATES GOVERNMENT

# *Memorandum*

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
Box 300
Salem OR 97308

DATE: June 1, 1973

In reply refer to: 10-35.6

SUBJECT: Oregon Project I-205-7(2)302
Columbia River Bridge 4000 Ft Extension
Proposed Engineering Study with Sverdrup & Parcel

FROM : G. L. Green, Division Engineer

TO : Mr. George M. Baldwin, Administrator of Highways
Salem, Oregon
Attention: Mr. E. S. Hunter

I have reviewed Mr. Hart's May 24 submittal on the Columbia River Bridge 4000 foot extension study to be performed by Sverdrup & Parcel. I feel it is necessary to provie alternate feasibility studies to refine a decision on a design across the small boat channel area. There appear to be three alternates:

1. The initially submitted structure in which the Port of Portland goes ahead with their runway extension plans.
2. A 4000 foot structure extension across the small boat channel area.
3. A partial fill and structure across the small boat channel.

With the fill alternates Sverdrup & Parcel proposal of May 22 is too detailed for the "type" decision phase. By Sverdrup & Parcel numbered items we would reduce the study as follows:

1. Eliminate span reevaluation because this refinement would have little effect on the total cost of this major crossing.
2. Keep the pier alteration as shown because it would affect the hydraulic analysis of the new condition.
3. Eliminate this item because it could effectively be considered in the final design phase.
4. Eliminate the two-ramp structure study because this could be done by your department in the preliminary phase.
5. Eliminate the pedestrian alternate at this stage (not germane to the "type" decision).

(more)

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ASSISTANT STATE HIGHWAY ENGINEER

6. Evaluate the foundation study to see if some reduction could effectively be made and still allow us to proceed through the final design.

7. Keep as shown.

a. Eliminate the precise structural layout because of Item 1 and the relative unimportance of such a layout at this stage of the feasibility study.

b. The cost estimate of the various alternates which as described by the above comments does not need to be detailed.

c. Keep as shown.

d. Keep as shown.

e. Eliminate the colored renderings until the alternate selection is made.

Add the following study work as discussed in our meeting with Messrs. Klaboe, Hunter, and Hart, May 31.

1. Feasibility of a fill and partial length structure in a small boat channel.

2. Hydraulic analysis by Bauer & Associates without a new channel through Government Island but adding the fill and partial structure in the small boat channel area.

We would appreciate your comments and would be glad to meet and "hammer out" our differences on this extremely important study.

G. L. Green

**OREGON STATE**
**HIGHWAY DIVISION**

HIGHWAY BUILDING • SALEM, OREGON • 97310

May 24, 1973

TO Mr. Glen Green
Division Engineer
Federal Highway Administration

ORIGINAL SIGNED
WALTER J. HART

FROM Walter J. Hart
Bridge Engineer

SUBJECT Proposed Engineering Study
4,000-foot Extension
Columbia River Bridge, I-205
Bridge No. 9555

Attached is a copy of a proposal from our consultant, Sverdrup & Parcel, for engineering services for a study of the proposed 4,000-foot extension to the I-205 bridge.

Representatives of the consultant will be in the offices of the Bridge Section at 9:30 a.m. on Tuesday, May 29 for an initial discussion on this proposal. It would be appropriate for someone from your staff to be in attendance at that meeting if at all possible.

WJH:dh
Attachment

cc E. S. Hunter

NOTED
E. S. HUNTER

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MAY 24 1973
OFFICE OF
ASSISTANT STATE HIGHWAY ENGINEER

SVERDRUP & PARCEL AND ASSOCIATES, Inc.

May 22, 1973

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MAY 24 1973
OFFICE OF
ASSISTANT STATE HIGHWAY ENGINEER

Oregon State Highway Division
Highway Building
Salem, Oregon 97310

Attention: Mr. Walter J. Hart
Bridge Engineer

Gentlemen:

Subject: I-205 Columbia River Bridge - Bridge 9555
Engineering Proposal
Study of Bridge Extension

We are pleased to submit this proposal for services to be performed for the subject project as requested by your letter dated May 3, 1973. The services include a study and report for a southerly extension of the Columbia River Bridge from the currently planned terminus near Station 85+00 to a connection with the airport interchange near Station 126+00.

The study and report will include, but not be restricted to, the following:

1. Re-evaluate span lengths and type of concrete superstructure construction south of Station 44+57.
2. Re-evaluate pier orientations south of Station 44+57 for presently existing river conditions as well as for the presumed conditions following a possible future expansion of Portland International Airport on fill placed in the river.
3. Investigate the effect on pier design of the future fill in the river.
4. Study two ramp structures and widened main spans near the airport interchange.
5. Evaluate alternatives for the bridge extension both with and without a pedestrian-bicycle path.
6. Perform such foundation investigation as required to establish design criteria. The minimum exploration will be 5 borings on Government Island, 9 borings in the South Channel, 3 borings on the south river bank, and appropriate sampling.

NOTED
E. S. HUNTER

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7. Furnish twenty-five copies of a written report which will include, but not be restricted to, the following:

    (a) A recommendation as to the structure layout considered most appropriate, together with a discussion of its advantages and disadvantages.

    (b) A cost estimate segregated into quantities of items entering into the construction with estimated unit costs for each item.

    (c) A drawing of the plan and elevation of the complete bridge, from the Washington abutment to the airport interchange, together with any necessary drawings of details.

    (d) A construction time estimate.

    (e) Photographs of two colored renderings of the bridge. These photographs will be at least 11" x 22" in size and will be folded in the report; the original colored renderings, at least 22" x 44" in size, will be furnished to and become the property of the State.

We propose to provide those services required under Item I, Preliminary Report Complete, of the attached Fee Schedule, for a lump sum fee of $91,210.00 and to provide those services required under Item 2(a), Administrator Fee for Foundation Investigation and Report, for a lump sum fee of $4,000.00. Items 2(b) through 2(i) of the attached schedule, all in connection with the Foundation Investigation and Report, are unit prices and lump sum amounts as received directly from the firm which we plan to employ to perform this portion of the work. The total amount shown on the attached schedule for Items 2(b) through 2(i) is $81,420.00 based on a total of 2,500 lineal feet of drilling.

Two sheets of fee determination for Item 1 are attached showing estimated manhours, salary rates, direct costs, overhead, profit, and cost of consultants to be employed by our firm.

We plan to employ the services of the following consultants in connection with our work:

Foundation Investigation and Report
    Cornell, Howland, Hayes & Merryfield

Construction Aspects of Design
    Ben C. Gerwick, Jr.

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This proposal is based on the following assumptions:

1. The profile of the river bed is to remain in its current shape, with no anticipation of future dredging; except that the Port of Portland may fill in the South Channel at some future time for expansion of the Portland International Airport. Limits of this fill are to be furnished by the State.

2. Pier shapes and superstructure concepts are to remain as currently proposed except the selected method of superstructure construction, precast segmental cantilever construction, may be changed in some areas either to cast-in-place construction supported on falsework or to cast-in-place segmental cantilever construction.

3. All profiles and horizontal control are to be furnished by the State.

4. The State shall obtain all rights of way required for the project.

5. The State shall obtain all utility permits, U. S. Department of Transportation permits and other agreements necessary for the project.

6. The State will perform preliminary field surveys, establish horizontal and vertical alignment and will furnish to Consultant the following: A reproducible Ikon, Scale 1" = 50' map, showing horizontal controls, restricted areas, roadway widths and topography for the project; profiles showing vertical controls and alignment; a utilities map, and any other data in State's files that might be applicable to Consultant's work.

7. The State shall establish centerline monuments along the centerline of the bridge, specific monuments on the south bank of the river and at least one additional monument on the south bank to provide control points adequate to permit the foundation exploration subcontractor to properly position drill barges as he deems necessary.

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BRIDGE DIVISION

It is anticipated that this study and report will be completed within five months after receipt of notice to proceed. We are available to discuss the proposal at your convenience.

Very truly yours,

SVERDRUP & PARCEL AND ASSOCIATES, Inc.

R. D. Bans

R. D. Bans, P. E.
Assistant Vice President

Attachments

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MAY 23 1973
BRIDGE DIVISION

## FEE SCHEDULE

| Item | Unit & Quantity | Unit Price | Amount | |
|---|---|---|---|---|
| 1. Preliminary Report, Complete | L. S. | -- | | $ 91,210 |
| 2. Foundation Investigation and Report | | | | |
| (a) Administrator Fee | L. S. | -- | $ 4,000 | |
| (b) Foundation Report | L. S. | -- | 3,500 | |
| (c) Mobilization and Demob. | L. S. | -- | 16,500 | |
| (d) Land Drilling | 1,300 L.Ft. | 19.00 | 24,700 | |
| (e) Water Drilling | 1,200 L.Ft. | 23.50 | 28,200 | |
| (f) Split Tube Sampling | 300 only | 6.00 | 1,800 | |
| (g) Analysis of Split Tube Samples | 35 only | 60.00 | 2,100 | |
| (h) Undisturbed Samples | 8 only | 15.00 | 120 | |
| (i) Analysis of Undisturbed Samples | L. S. | -- | 4,500 | |
| Subtotal - Foundation Investigation and Report | | | | 85,420 |
| | | Total | | $ 176,630 |

Items 1, 2(a), 2(b), 2(c) and 2(i) are fixed quantity items, paid for on a lump sum basis.

Items 2(d), 2(e), 2(f), 2(g) and 2(h) are variable quantity items. Quantity paid for will be the actual quantity of work performed.

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MAY 23 1973
BRIDGE DIVISION

# FEE DETERMINATION

## ITEM 1. PRELIMINARY REPORT COMPLETE

| | | Man Months | | | | | | Avg. | Base |
|---|---|---|---|---|---|---|---|---|---|
| Classification | Function | 1 | 2 | 3 | 4 | 5 | Total | Monthly Rate | Salary |
| P-8 | Project Manager | ½ | ½ | ½ | ½ | ½ | 2½ | $ 1,940 | $ 4,850 |
| P-6 | Project Engineer and Group Leaders | 1 | 2 | 2 | 2 | 1 | 8 | 1,630 | 13,040 |
| P-5 | Architects and Engineers | 1 | 1½ | 2 | 2 | 1 | 7½ | 1,380 | 10,350 |
| P-4 | Designers and Estimators | | | | 1 | 1 | 2 | 1,225 | 2,450 |
| P-1 | Draftsmen | | | 1 | 1 | ½ | 2½ | 860 | 2,150 |
| | Total | 2½ | 4 | 5½ | 6½ | 4 | 22½ | | $ 32,840 |

Total Manhours Required: 22½ x 173-1/3 = 3,900

Total Base Salary Cost: $ 32,840

Average Hourly Rate: $ 8.42

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BRIDGE DIVISION

## FEE DETERMINATION

## ITEM 1, PRELIMINARY REPORT COMPLETE

| | |
|---|---|
| **Salaries and Overhead** | |
| Base Salary Cost 3,900 MH x $8.42/Hr. | $ 32,840 |
| Salary Related Expenses 22.5% x $32,840 | 7,390 |
| Productive Salary Cost | 40,230 |
| Overhead 60% x $40,230 | 24,140 |
| Total Salaries and Overhead | $ 64,370 |
| **Direct Costs** | |
| Computer Time | $ 5,000 |
| Travel and Subsistence | 2,000 |
| Renderings, Report Printing, Telephone | 6,200 |
| Total Direct Costs | $ 13,200 |
| **Profit** | 11,640 |
| Total Above | $ 89,210 |
| **Subcontracts** | |
| Construction Aspects of Design | $ 2,000 |
| Total Lump Sum - Item 1 | $ 91,210 |

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MAY 23 1973
BRIDGE DIVISION

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Consult

Form FHWA 121 (Rev. 7-72)

UNITED STATES GOVERNMENT

*Memorandum*

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
Box 300
Salem OR 97308

DATE: May 31, 1973

In reply refer to: 10-35.6

SUBJECT: Oregon Project I-205-7(2)302
Columbia River Earthquake Analysis
and Design Criteria

FROM : G. L. Green, Division Engineer

TO : Mr. George M. Baldwin, Administrator of Highways
Salem, Oregon

We have reviewed the consultant's Earthquake Analysis for Proposed Interstate Route 205, Columbia River Bridge prepared by Sverdrup & Parcel Associates, dated March, 1973, and submitted by Mr. Hart's April 13 letter. We are satisfied as to the rationale of the earthquake criteria and therefore approve its application to this project.

for G. L. Green

RECEIVED
STATE HWY ENGR
JUN 1 '73
REFER TO
Hunter
FOR
Info Inves R/D D/R Sign Act File

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6-1-73
Copy Hart

RECEIVED
JUN 1 1973
OFFICE OF
ASSISTANT STATE HIGHWAY ENGINEER

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**OREGON STATE HIGHWAY DIVISION**

INTER-DEPARTMENT CORRESPONDENCE

Salem, Oregon

DATE May 30, 1973

TO Mr. Adrian Olson
Preliminary Design Engineer

FROM Walter J. Hart
Bridge Engineer

ORIGINAL SIGNED
WALTER J. HART

SUBJECT Columbia River Bridge No. 9555
I-205
Alignment for 4,000' Extension

We are presently engaged with our consultant, Sverdrup & Parcel, in negotiations for an engineering study of a 4,000 foot extension to the I-205 Bridge.

In order that our consultant can proceed with that study, it is important that we have up-to-date alignment, roadway sections, and other accompanying data for the proposed Airport Interchange and relocated Marine Drive.

Please forward five prints each of this information to the Bridge Section as soon as it is available.

WJH:dh

cc E. S. Hunter

NOTED
E. S. HUNTER

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MAY 31 1973
OFFICE OF
ASSISTANT STATE HIGHWAY ENGINEER

8905

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RECEIVED
HWY ENGR
MAY 10 '73
(REV. 10-69)
REFER TO

FOR

| Info | [illegible] | d/D | D/R | Sign | Act | File |
|---|---|---|---|---|---|---|
| | | | | | | |

J

# OREGON STATE HIGHWAY DIVISION

INTER-DEPARTMENT CORRESPONDENCE

Salem, Oregon
May 9, 1973

**SUBJECT:** Preliminary Drainage Plans
Columbia River Bridge
I-205

To:

A. E. Johnson
Deputy State Highway Engineer

Building

By a note on a copy of a letter you sent to Vernon Cusack of the Federal Highway Administration dated March 27, 1973, you asked about an investigation which Mr. Robert Bothman was working on concerning emergency services to the I-205 Bridge across the Columbia River. I discussed this matter with Mr. Bothman, this date, and he advises that he has assigned someone to make the investigation, but the report is not available as yet.

D. H. Moehring
Maintenance Engineer

DHM:mp

**NOTED**
A. E. JOHNSON

March 27, 1973

Mr. Vernon V. Cusack
Acting Division Engineer
Federal Highway Administration
Box 300
Salem, OR 97308

Dear Sir:

Preliminary Drainage Plans
Columbia River Bridge, I-205
Bridge No. 9555
Your File 10-35.6

Your reply to the preliminary submittal of the drainage plans for the I-205 Bridge mentioned the concern of the Coast Guard about spilled petroleum products draining into the river.

In the event of an accident involving possible flammables, the best disposal solution (in terms of overall safety to the structure and to the public) would appear to be immediate dispersal by flushing through the planned drainage system.

The total problem of emergency services to the bridge are now being studied. A final decision on procedures to handle emergencies such as petroleum spills will be made upon the conclusion of the study.

Very truly yours,

A. E. Johnson
Deputy State Highway Engineer

cc Mr. Jack Allen
Sverdrup & Parcel

bc F. B. Klaboe
E. S. Hunter
Walt Hart
R. N. Bothman (enc.) - Some time ago your office was requested to investigate the problem of emergency services to the I-205 Bridge. I would appreciate a report on the progress of this investigation (see attached bicycle report).

WJH:dh ja

Form FHWA-121 (12-67)
UNITED STATES GOVERNMENT

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
Box 300
Salem OR 97308

# *Memorandum*

TO : Mr. George M. Baldwin, Administrator of Highways
Salem, Oregon
Atten: Mr. E. S. Hunter, Asst State Highway Engr

DATE: February 12, 1973

In reply refer to: 10-35.6

FROM : for Vernon V. Cusack, Acting Division Engineer
Salem, Oregon

SUBJECT: Oregon Project I-205-7(2)302
Columbia River Bridge
Drainage Plan

Mr. Hart's December 19, 1972 submission to Mr. Foster of the Washington Department of Highways included plans for inlet type and spacing on the subject bridge.

Please note on the Coast Guard letter on the draft EIS they expressed concern of flushing facilities for spilled petroleum products over the river. It would appear appropriate to study if this is possible with minor modification to the proposed system.

May we have your comments.

RECEIVED
FEB 14 1973
BRIDGE DIVISION

RECEIVED
STATE HWY ENGR
FEB 13 '73
REFER TO
Hunter
FOR

| Info | Inves | R/D | [illegible] | [illegible] | [illegible] | File |
|---|---|---|---|---|---|---|
| | | ✓ | | | | |

BUY U.S. SAVINGS BONDS REGULARLY ON THE PAYROLL SAVINGS PLAN

GPO 917-344

**SVERDRUP & PARCEL AND ASSOCIATES, Inc.**
*Consulting Engineers*
505 - 106TH AVENUE N. E.
P. O. BOX 369
BELLEVUE, WASHINGTON 98004

December 14, 1972

Oregon State Highway Division
Highway Building
Salem, Oregon 97310

Attention: Mr. Walter J. Hart
Bridge Engineer

Gentlemen:

Subject: I-205 Columbia River Bridge
Bridge 9555

Submitted herewith, for your review and approval, are prints of our Drainage Plan for the subject bridge. The plan is based on collecting bridge run-off from Spans 1 through 10 and discharging run-off from Spans 11 through 26 into the Columbia River.

A 6-inch by 3-foot grated inlet is proposed in Spans 1 through 10 and also near Sta. 61+66.15 where the roadway cross-slope is flat. In Spans 11 through 26 (except near Sta. 61+66.15) a 6-inch by 1-foot grated inlet is proposed.

It is our understanding that a storm sewer will be located on the Washington bank along the westerly side of I-205 between SR-14 and the river. We believe this to be the most appropriate system to receive the bridge run-off from Spans 1 through 10 if provisions can be made to accept it.

Very truly yours,

SVERDRUP & PARCEL AND ASSOCIATES, Inc.

R. Jack Allen

R. Jack Allen, P. E.
Project Engineer

RECEIVED
DEC 18 1972
BRIDGE DIVISION

cc: H. Scott Coulter

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**OREGON STATE**
**HIGHWAY DIVISION**

HIGHWAY BUILDING • SALEM, OREGON • 97310

RECEIVED
FEB 14 1973
OFFICE OF
ASSISTANT STATE HIGHWAY ENGINEER

February 12, 1973

RECEIVED
STATE HWY ENGR
FEB 16 '73
REFER TO
FOR

Info
Inves
R/D
D/R
Sign
Act
File

Mr. R. Jack Allen
Sverdrup & Parcel & Associates, Inc.
P. O. Box 369
Bellevue, WA 98004

NOTED
E. S. HUNTER

Dear Mr. Allen:

Design Criteria and Preliminary Plans
Columbia River, I-205 Bridge
Bridge No. 9555

NOTED
A. E. JOHNSON

The following are the composite comments of the State of Washington, the Federal Highway Administration and this office on the design criteria and preliminary plans received to date. Two copies of the design criteria with suggested revisions or items in question indicated by distinguishing type, are enclosed.

On the preliminary plans for the Washington approach spans, we have the following comments:

A. The diaphragm spacing appears to be excessive. We believe that this should be reduced to approximately 50 feet.

B. The top slab transverse reinforcement shown on the cross section sketch has straight bars. For the final design we believe hooks will be required on these bars in order to transfer the horizontal load from the traffic railing into the slab. Where there is a constant beam spacing we suggest using alternate truss bars and straight bars for the transverse reinforcement.

C. The length of cantilever in Span 10 (60 feet ±) may make deflections difficult to control in this span.

D. There should be additional stirrups each side of the girder web access holes.

E. It is Oregon's design office practice to limit spacing of the top longitudinal bars to 8 inches rather than 12-inch spacing shown.

The State of Washington has reviewed the advanced drainage plan and has offered the following comments:

The proposed storm sewer drainage from the drain systems in Spans 1 through 10 will not be excessive with relation to the existing storm sewer. A print showing the location of the storm sewer and manholes is enclosed for your use. As the design proceeds further into detail we will want to review the drainage system for a complete evaluation with particular emphasis on provisions for cleaning and maintaining the system. Adequate clean-outs and access will be necessary to ensure that the drainage system will perform as planned. We have no basic objections to the proposed discharge from Spans 11 through 26 directly into the Columbia River. We can expect some adverse comment from some of the environmental agencies on the handling of drainage on these spans.

On the preliminary sign plans we offer the following comments:

On the Oregon end of the structure the sign message "PORTLAND INTERNATIONAL AIRPORT" is used. Elsewhere around Portland the message "PORTLAND AIRPORT" is used. It is suggested that this latter message be used here. It is also suggested that this sign be moved to approximately Oregon Station 66+00. The advance sign for "PORTLAND AIRPORT" uses a bottom line message "EXIT 1 MILE". The standard is to eliminate the EXIT". Also, the exit number "EXIT 24" should be added on a panel at the top of the sign. The "COLUMBIA RIVER" sign should be type AA and should use 8-6 letters.

The Traffic Division of the State of Washington offers the following comments on the proposed signing.

1. Provision should be made for the showing of an exit number for the connection to our SR 14 at the north end of the bridge. Since I-205 commences in Oregon and crosses a state line, the MUTCD sets forth that we will use a continuation of your milepost exit numbering system for all exits on I-205 in the State of Washington. We have adopted the practice of showing our exit numbering panel the same width as the parent sign. This would be true on the two advance signs in the vicinity of station 74+50 and station 101. This also holds true for the exit panel for the overhead exit directional signing on the sign bridge at station 127.30.

2. When the exit number is shown, the word "EXIT" on the one-mile advance signs should be deleted.

3. We have indicated on the overhead sign at station 101 that the exit only panel should be black on yellow to conform with the MUTCD. Likewise we have deleted the "EXIT 25 MPH" panel and the three down arrows on the two overhead signs at station 127.30. This is consistent with the MUTCD.

4. We recommend the modification of the advisory sign at station 114+10 to read "RIGHT LANE MUST EXIT". This is consistent with the practice of signing the right-hand lane for lane drops in Washington.

5. We would like to recommend that the sign nomenclature be consistent with the new MUTCD.

The designs of your cantilever and sign bridge structures are most interesting and clean looking. We note that you have indicated fluorescent lighting for the overhead signs. We have changed to the practice of using mercury vapor luminaires for all of our new overhead sign illumination and find it to be most satisfactory.

Our bridge engineer reviewed the sign structures and indicated that the sign structure base design should be coordinated with the bridge design. He states further that it is possible that the overhanging slab at the sign supports will require thickening or other strengthening to handle the sign structure loads. Likewise, appropriate means to prevent rust stain on the concrete structure from the weathering grade steel should be specified.

The justification studies for a proposed joint-use bike and maintenance path on the structure are concurrently under way by both the State of Washington and the State of Oregon. It is anticipated that these studies will be completed before the end of February. At that time a request will be made to the Federal Highway Administration for reconsideration of federal-aid participation in the cost of the path. The results of the restudy of the bike path issue to date would indicate preference towards the precast path in the median.

The bike path ramp treatment at the Washington end of the structure has come under question. It has been suggested that from an esthetic standpoint a spiral ramp to SR 14, located at Pier 3, may be preferable. In any case, we believe that the grade on the bike path ramp should not exceed 4.5 percent for any but a short run.

There are several areas relating to your design work which are still in question. I will keep you advised of developments as they relate to the Portland International Airport expansion as they occur. I will also advise you shortly on the preferred handling of the outside railing.

Very truly yours,
George M. Baldwin
Administrator of Highways
By ORIGINAL SIGNED
WALTER L. HART
Walter L. Hart
Bridge Engineer

WJH:dh
Attachments
cc E. S. Hunter /w/ attach.
R. N. Bothman /w/ attach.
Wm. Foster /w/ attach.
H.A. Schell /w/attach

# STRUCTURAL
# DESIGN CRITERIA
# COLUMBIA RIVER BRIDGE NO. 9555
# I-205

October 25, 1972

## I. GENERAL

Design will be in accordance with Division I of the AASHO Standard Specifications for Highway Bridges, 1969 Edition, including the 1970, 71 and 72 Interim Specifications, as modified by the following paragraphs.

## II. ALIGNMENT AND CLEARANCES

The horizontal alignment will conform to Exhibit C of the Engineering Agreement and vertical alignment will conform to profile received with letter dated February 2, 1971.

Minimum horizontal and vertical clearances in river spans (Spans 12 through 25) will conform to plan forwarded with letter dated December 2, 1971.

Minimum construction clearances in the Main Channel (Span 12) will be 300 feet horizontally with full vertical clearance.

*Can full vertical clearance be maintained over a width of 300' if poured-in-place segmental construction is used?*

A minimum vertical clearance of 16 feet 6 inches will be provided over SR 14 and a minimum vertical clearance of 15 feet will be provided over Marine Drive.

*The vertical clearance over Marine Drive should be increased if practical.*

Vertical clearances to Evergreen Highway and the Burlington Northern track will not be critical.

## III. LOADS

### DEAD LOADS

Weight of reinforced concrete will be assumed to be 150 pcf.

*The unit weight of concrete in this area is 155-160 lbs./ft.*$^3$*. We recommend 155#/ft.*$^3$ *for design purposes.*

No allowance will be made for a future wearing surface.

An allowance of 5 psf will be made for formwork left in place under the top slab in Spans 1 through 10 and Span 27.

### LIVE LOADS

HS20 and Special Interstate loading will be used.

The maximum deflection due to live load plus impact will be equal to 1/1000 of the span length for simple or continuous spans and 1/375 of the cantilever arms for cantilever spans.

Distribution of live load will be as follows:

River Spans - (Spans 11 through 26)

The superstructure will be designed as a single unit for 5 lanes of live load per roadway without any reduction for multilane use. The substructure will be designed for the 5 lanes of live load per roadway with the appropriate reduction for multi-lane use according to AASHO.

Land Spans - (Spans 1 through 10 and Span 27)

The superstructure will be designed with the number of lanes proportioned for the roadway width on the basis of 5 lanes for a 68 foot roadway. No reduction will be made for multilane use in the superstructure design but will be applied in the design of the substructure.

### FORCE OF STREAM CURRENT, FLOATING ICE AND DRIFT

According to AASHO using a stream flow velocity equal to 4 feet per second in computing stream flow pressures.

*The Federal Highway Administration has suggested that if the pressure against the piers from stream current, floating ice and drift is a critical item, that a momentum analysis be utilized and a typical velocity distribution be used instead of the constant velocity proposed. In any event, we believe that a stream flow velocity of 4 ft. per second is too low. This should be increased to 5 fps. Some consideration should be given to applying stream forces at some arbitrary skew to the axis of the pier due to the uncertainty of stream flow direction.*

### CENTRIFUGAL FORCE

Centrifugal forces will be determined in accordance with AASHO using a design speed of 70 mph.

The actual number of traffic lanes per roadway with the appropriate reduction for multi-lanes will be used.

### EARTHQUAKE STRESSES

Seismic loads will be applied as follows:

EQ = HSCD

H = 1.0 for horizontal seismic loads

H = .67 for vertical seismic loads

S = 1.0 for spread footings

S = 1.25 for pile footings

$C = \frac{.05}{\sqrt[3]{T}}$ (Max. = .10, min. = .03)

T = fundamental period of the first mode of vibration of structure, in seconds, in direction under consideration

D = dead load

Members will be detailed to provide adequate ductility for resisting earthquake loads. All connections, such as hinge restrainers, bearings, hold down devices, etc., will be designed for a seismic force of 15% of the dead load reaction.

In earthquake analysis of piers in water, the added mass of water acting on the piers will be determined by the following formula:

$$W_a = W_o \pi a^2 C \quad 1 - \left(\frac{Z}{h}\right)^{\beta}$$

where

$W_a$ = Added mass of water

$W_o$ = Specific weight of water

$a$ = 1/2 width of pier along major axis

$c$ & $\beta$ = Functions based on depth of water and pier shape

$h$ = Water depth

$Z$ = Distance from river bottom to point being investigated

*Since the earthquake criteria is different from AASHO, a reference to its derivation should be provided. In particular we would appreciate background information on the formula for earthquake analysis of piers in water.*

## LONGITUDINAL FORCES

Friction at sliding bearings and at pins for rocker shoes will be assumed to be 14% of the dead load supported.

## WIND LOADS

Wind loads will be as specified in AASHO, with wind considered as an unbroken moving load.

Identical loaded lengths for wind-on-structure and wind-on-live load will be used.

In loading combinations which include live load and wind-on-live load, the stress from each will be computed as a maximum and need not be based on identical positions of the live load.

### THERMAL FORCES

According to AASHO with a variation in temperature equal to a rise of 30°F and a fall of 45°F from a mean temperature of 52°F.

*At this location we believe that a variation in temperature equal to a rise of 45° and a fall of 45° from the mean of 52° should be used.*

A coefficient of thermal expansion equal to .0000065 will be used.

The superstructure box girders will be designed for a temperature differential between the inside and outside of ± 30°F.

## IV. MATERIAL AND ALLOWABLE STRESSES

### A. CONCRETE

Minimum concrete strengths and allowable stresses will be as follows:

*The criteria should state whether working strength or ultimate strength design is to be used.*

Prestressed Concrete:

$f'_c = 5{,}000$ psi

Allowable stress at time of initial prestress

Compression $f_{ci} = .55\ (f'_{ci}) = .55 \times 4{,}000 = 2{,}200$ psi

Tension $f_{ci} = 0$

Stress at service loads after losses

Compression $f_c = .40\ (f'_c) = 2{,}000$ psi

Tension $f_c = 0$

Roadway slab (with transverse reinforcing) $f_c = 1{,}600$ psi $n = 6$

*The design of the roadway slab should be based on* $f'_c = 4{,}000$ *psi* $f_c - 1{,}320$ *psi*

In cantilever construction a temporary allowable compressive stress of $f_c = 2{,}200$ psi will be allowed in the bottom slab prior to stressing of the continuity strands.

Reinforced Concrete: (Non-Prestressed)

Columns and parapet barrier

$f'_c = 4{,}000$ psi $\qquad f_c = 1{,}600$ psi $\qquad n = 8$

Abutments and footings

$f'_c = 3{,}300$ psi $\qquad f_c = 1{,}320$ psi $\qquad n = 10$

Maximum allowable shear in footings will be 75 psi.

B. REINFORCING STEEL

ASTM A615 GRADE 40 with fs (tension) = 20 KSI & fs (compression) = 20 KSI, or

*The allowable stress for Grade 40 bars in compression should be 16,000 psi.*

ASTM A615 GRADE 60 with fs (tension) = 24 KSI & fs (compression) = 20 KSI, with selection dependent upon optimum use.

C. PRESTRESSING STEEL

1. Wire Strand: ASTM A416 - GRADE 270, uncoated seven-wire stress-relieved strand or,

strand equivalent to ASTM A416 - GRADE 270 with low relaxation properties.

*The use of the low relaxation Grade 270 prestressing strand should be reviewed. This material was approved by the FHWA (J. Wilkes' letter of January, 1971) but* *with certain qualifications.*

Allowable stresses will be as follows:

$f_s'$ = 270 KSI (Ultimate Strength)

$fy$ = .85 $f_s'$ = 229 KSI (Yield Point Stress)

$f_{si}$ = .70 $f_s'$ = 189 KSI (Temporary Stress before Losses due to Creep and Shrinkage)

$f_{si}$ = .75 $f_s'$ = 202 KSI (Maximum Jacking Stress)

$f_{se}$ = .68 $f_s'$ = 184 KSI (Maximum Effective Prestress after Losses)

2. High Strength Bars: High strength alloy steel reinforcement bars for for prestressed concrete meeting the requirements of AASHO Standard Specification M215.

Allowable stresses will be as follows:

$f_s'$ = 160 KSI (Ultimate Strength)

$fy$ = 140 KSI (Yield Point Stress)

$f_{si}$ = .70 $f_s'$ = 112 KSI (Temporary Stress before Losses due to Creep and Shrinkage)

$f_{si}$ = .75 $f_s'$ = 120 KSI (Maximum Jacking Stress)

$f_{se}$ = .68 $f_s'$ = 109 KSI (Maximum Effective Prestress after Losses)

## V. SUBSTRUCTURE

### GENERAL

Design criteria for substructure will be verified by a program of plate load tests and pile load tests.

Abutments - Abutments will be supported by HP12x53 friction piles with a maximum capacity of 50 tons.

Land Piers - Piers on the Washington shore will be supported by either

a) spread footings (where feasible): using a bearing capacity of 7 ton per square foot, or

b) pile footings: using HP14x89 end bearing H - piles having a 100 ton capacity per pile.

Water Piers - All water piers will be supported by pile footings using W14x150 end bearing H - piles having a capacity of 200 tons per pile.

## STABILITY

For computing the stability of substructure units, full hydrostatic pressure will be considered over the entire base with water surface elevations at any stage up to Elev. 36.50.

Substructure dead load will consist of the weight of concrete and the weight of soil and water on top of the footing.

Spread Footings - For all conditions of loading the resultant pressure shall be within the middle third of the base.

Pile Footings - Tension will not be allowed on any pile under any final loading condition.

## SEAL COURSE

For the design of seal courses a maximum water elevation of + 12.0 will be used.

An uplift force equal to 10 pounds per square inch, acting on an area equal to the perimeter of the pile times the depth of seal, will be allowed up to a maximum of 50 KIPS per pile.

Where piles are calculated for uplift, the minimum seal will be either

a) one half the depth of seal required without considering any pile uplift plus 1'0", or

b) 4'-0" minimum.

*We believe that the footing platform concept using large diameter piles (similar to the Coronado Bridge) has sufficient potential to be explored further. This* *method of substructure construction should be investigated at least enough to determine its advantages and disadvantages.*

### COLUMNS

All columns will be designed in accordance with AASHO and investigated for ultimate strength, with 100% of the moments caused by the immediate effects of prestressing plus 60% of the total effect of the remaining creep and shrinkage being added to AASHO Loading Combination Groups I, II and III.

River columns will be investigated for the unbalanced moment due to a difference in cantilever length of one segment.

It will be assumed that no more than 4 spans are made continuous before the introduction of a hinge.

## VI. SUPERSTRUCTURE

### PRESTRESSING

For segmental cantilever construction, segments will be considered to have a compressive strength of 4,000 psi when tensioned.

### LOSS OF PRESTRESS

#### A. FRICTION LOSSES

Friction losses will be as specified in AASHO 1.6.7 (A) with the design based on K = 0.0002 and $\mu$ = 0.25 (galvanized rigid duct) for wire strands and K = 0.0002 and $\mu$ = 0.15 (galvanized metal sheathing) for high strength bars.

Anchor set will be assumed to be 0.25 inches for cantilever construction and 0.625 inches for cast-in-place continuous construction.

#### B. PRESTRESS LOSSES

The following elements will be used in predicting prestress losses:

CREEP-$C_t$ at any time t

$$C_t = \left(\frac{t^{0.60}}{10+t^{0.60}}\right) \times C_u$$

where $t$ = time in days

$C_u$ = ultimate creep coefficient and is assumed to be 1.5.

The remaining creep coefficient for cantilever construction after closing is assumed to be 1.0.

The effect of creep in the redistribution of moments after continuity has been established for the cantilever spans will be determined by the Buseman Creep Fiber Method.

*We would appreciate a reference for the Buseman Creep Fiber Method.*

The creep coefficient used in this redistribution is assumed to be 1.0.

SHRINKAGE

$$E_{SH_t} = \left(\frac{t}{35+t}\right) E_{SH_U}$$

where $t$ = time in days

$E_{SH_U}$ = the ultimate shrinkage strain = 0.00025"/in.

The shrinkage occuring during cantilever construction is assumed to be .000115"/in. and the shrinkage remaining after closing to be .000135"/in.

ELASTIC SHORTENING

$$E.S. = \left(f_{cr}\right) \times \frac{E_s}{E_c}$$

where $f_{cr}$ is the average concrete stress at the C.G. of prestressing steel at time of release. The modulus of elasticity of concrete $E_c$ is assumed to be:

$$E_c = (W)^{\frac{3}{2}} \times 33 \sqrt{f'_c}$$

where W is the unit weight of concrete.

## RELAXATION OF PRESTRESSING STEEL

Stress loss due to relaxation of prestressing during any time t will be equal to:

for stress relieved steel

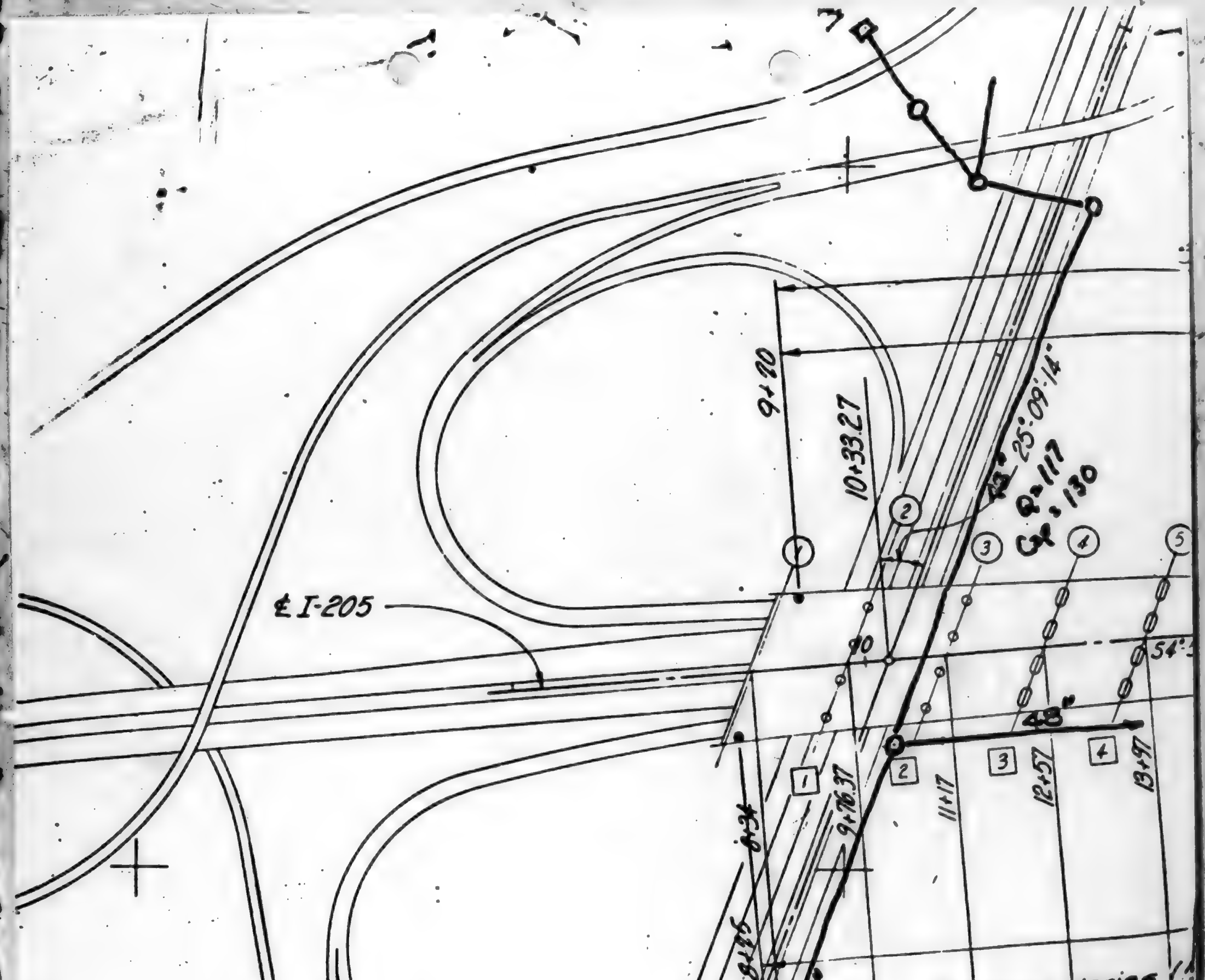
$$\frac{\log t}{10} \times \left(\frac{f_{si}}{F_y} - 0.55\right) \times f_{si}$$

for low-relaxation steel

$$\frac{\log t}{45} \times \left(\frac{f_{si}}{F_y} - 0.55\right) \times f_{si}$$

where $f_{si}$ = stress at beginning of time t

t = time in hours


9+20
10+33.27
25°09'14"
48"
Q=117
Cap=130
①
②
③
④
⑤
℄ I-205
90
54°
48"
1
2
3
4
9+76.37
11+17
12+57
13+97
9+34
8+78
48"
Spacing varies
142.37'
140.63'
140'
140'
~~S.S. C.~~
~~Runo~~
Q=88
Cap=121

Storm Sewer
Capacity
212.0 cfs
Runoff
180 cfs

[illegible]

SVERDRUP & PARCEL AND ASSOCIATES, Inc.

February 2, 1973

Oregon State Highway Division
Highway Building
Salem, Oregon 97310

Attention: Mr. Walter J. Hart
Bridge Engineer

Gentlemen:

Subject: Progress Report No. 31
Phase B - Final Design
Columbia River Bridge No. 9555

This report covers the period from January 20, 1973, to February 2, 1973. Progress of items of work is shown on the attached bar graph. We estimate that Phase B of the project is 47.8 percent complete.

## PROGRESS TO DATE

Supplementary pedestrian-bike path studies, structural design criteria, signing plans, and drainage plans have been submitted. Structural design is proceeding.

## CHRONOLOGY OF EVENTS IN REPORT PERIOD

January 30, 1973 - Received scour data at bridges downstream of proposed I-205 bridge.

## ANTICIPATED FOR NEXT REPORT PERIOD

Bridge design will continue.

NOTED
H. S. COULTER

Very truly yours,
SVERDRUP & PARCEL AND ASSOCIATES, Inc.

R. D. Bane, P. E.
Regional Manager

R. Jack Allen

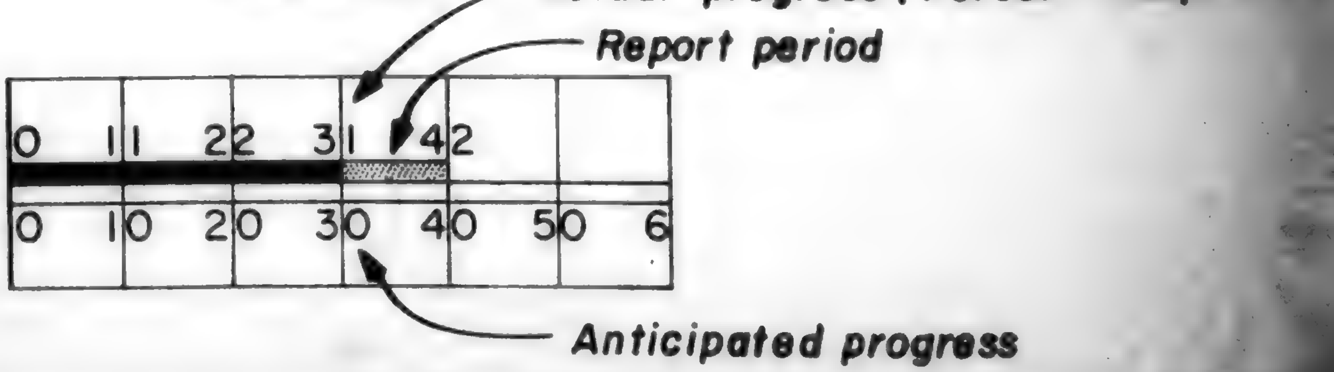
By: R. Jack Allen, P. E.
Project Engineer

RECEIVED
FEB 7 1973
Office of
Assistant State Highway Engineer

Attachment
cc: H. Scott Coulter

| ITEM | PERCENT OF TOTAL WORK | ESTIMATED PERCENT COMPLETED | PERCENT OF TOTAL COMPLETED | 1971 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 10 – 15 | 10 – 29 | 11 – 12 | 11 – 26 | 12 – 10 | 12 – 24 | 1 – 7 | 1 – 21 | 2 – 4 | 2 – 18 | 3 – 3 | |
| DESIGN | 42 | 73 | 30.7 | <br>0 | 1<br>1 | 2<br>2 | 4<br>4 | 6<br>6 | 9<br>9 | 12<br>12 | 14<br>15 | 16<br>18 | 19<br>21 | 21<br>26 | 23<br>30 |
| DRAWINGS & GEOMETRY | 50 | 33 | 16.5 | | | <br>0 | 1<br>1 | 2<br>2 | 3<br>3 | 4<br>4 | 6<br>6 | 7<br>8 | 8<br>10 | 9<br>13 | 9<br>16 |
| SPECIFICATIONS, QUANTITIES & COST ESTIMATES | 8 | 7 | 0.6 | | | | | | | | | | | | |
| TOTAL | 100 | | 47.8 | <br>0 | 0.4<br>0.4 | 0.8<br>0.8 | 2.2<br>2.2 | 3.5<br>3.5 | 5.3<br>5.3 | 7.0<br>7.0 | 8.9<br>9.3 | 10.2<br>11.6 | 12.0<br>13.8 | 13.3<br>17.4 | 14.2<br>20.6 |

## LEGEND


Actual progress (Percent completed)
Report period
0
11
22
31
42
0
10
20
30
40
50
6
Anticipated progress

10-15-71

# PROGRESS REPORT
# PHASE B - FINAL DESIGN
# COLUMBIA RIVER BRIDGE NO. 9555
# ROUTE I-205

BI-WEEKLY PERIOD ENDING

1972

| | 2-4 | 2-18 | 3-3 | 3-17 | 3-31 | 4-14 | 4-28 | 5-12 | 5-26 | 6-9 | 6-23 | 7-7 | 7-21 | 8-4 | 8-18 | 9-1 | 9-15 | 9-29 | 10-13 | 10-27 | 11-10 | 11-24 | 12-8 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 19 | 21 | 23 | 25 | 27 | 29 | 31 | 32 | 32 | 33 | 33 | 34 | 34 | 35 | 36 | 37 | 39 | 44 | 50 | 57 | 64 | 70 | 7 |
| | 21 | 25 | 30 | 34 | 38 | 43 | 47 | 51 | 55 | 60 | 64 | 68 | 72 | 76 | 80 | 84 | 88 | 91 | 94 | 97 | 99 | 100 | |
| 7 | 8 | 9 | 9 | 10 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 12 | 12 | 12 | 12 | 13 | 15 | 18 | 25 | 26 | [illegible] | 3 |
| 8 | 10 | 13 | 16 | 19 | 22 | 26 | 29 | 32 | 35 | 39 | 42 | 45 | 48 | 52 | 55 | 58 | 62 | 65 | 69 | 72 | 75 | [illegible] | 8 |
| | | | | | | | | | | | | | | | | | | | | | | 3 | |
| | | | | | | | | | | 0 | 2 | 4 | 7 | 11 | 15 | 20 | 25 | 30 | 34 | 39 | 44 | |
| .2 | 12.0 | 13.3 | 14.2 | 15.5 | 16.8 | 17.7 | 18.5 | 18.9 | 18.9 | 19.4 | 19.4 | 19.8 | 20.3 | 20.7 | 21.1 | 21.5 | 22.9 | 26.0 | 30.0 | 35.4 | 39.9 | 44.1 | 4 |
| .6 | 13.8 | 17.0 | 20.6 | 23.8 | 27.0 | 31.1 | 34.2 | 37.4 | 40.6 | 44.7 | 47.9 | 51.2 | 54.6 | 58.5 | 62.0 | 65.5 | 69.6 | 72.7 | 76.4 | 79.5 | 82.2 | 86.0 | 8 |

*pleted)*

DATE FEB. 2, 1973
REPORT NO. 31

|  |  |  |  |  | 1973 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10-27 | 11-10 | 11-24 | 12-8 | 12-22 | 1-5 | 1-19 | 2-2 | 2-16 | 3-2 | 3-16 | 3-30 | 4-13 | 4-27 | 5-11 | 5-25 | 6-8 | 6-22 | 7-6 | 7-20 | 8-3 |
| 57 | 64 | 70 | 71 | 71 | 72 | 72 | 73 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 97 | 99 | 100 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 23 | 26 | 29 | 31 | 32 | 32 | 33 | 33 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 72 | 75 | 79 | 82 | 85 | 89 | 91 | 94 | 96 | 97 | 98 | 99 | 100 |  |  |  |  |  |  |  |  |
|  |  | 3 | 7 | 7 | 7 | 7 | 7 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 34 | 39 | 44 | 48 | 53 | 58 | 62 | 67 | 72 | 78 | 83 | 89 | 95 | 100 |  |  |  |  |  |  |  |
| 35.6 | 39.9 | 44.1 | 45.9 | 46.4 | 46.8 | 47.3 | 47.8 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 79.5 | 82.2 | 85.0 | 86.8 | 88.7 | 91.1 | 92.5 | 94.4 | 95.8 | 96.7 | 97.6 | 98.6 | 99.3 | 100.0 |  |  |  |  |  |  |  |

SVERDRUP & PARCEL AND ASSOCIATES, INC.
CONSULTING ENGINEERS
BELLEVUE, WASHINGTON

7735 [illegible]

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DEC 27 197

**OREGON STATE**
**HIGHWAY DIVISION**

HIGHWAY BUILDING • SALEM, OREGON • 97310

December 26, 1972

Mr. Glen Green
Division Engineer
Federal Highway Administration

Walter J. Hart
Bridge Engineer

ORIGINAL SIGNED
WALTER J. HART

Alternate Substructure Design
Columbia River I-205 Bridge
Bridge No. 9555

Sverdrup & Parcel, our consultant on the I-205 crossing, have asked for our comments on an alternate type of substructure design for the river piers. The type of design in question is that utilized on the Coronado Bridge in San Diego. Plans of that structure have been furnished Mr. Pillsbury of your office. We would appreciate the comments of your office and of your Washington office as to the applicability of this substructure type to the I-205 Bridge.

The basic concept proposed is for a footing platform supported by large diameter piles. A footing elevation would be near low water elevation as opposed to an elevation below stream bed as in conventional cofferdam construction. Mr. Gerwick, prestress consultant to Sverdrup & Parcel, has suggested that this type design be considered. He believes that it may have some significant influence on substructure costs.

WJH:dh

cc Mr. Wm. Foster, State of Washington
Mr. R. Jack Allen, Sverdrup & Parcel
Mr. A. E. Johnson
Mr. E. S. Hunter
Mr. H. S. Coulter

NOTED
E. S. HUNTER

I-205
[illegible]

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RECEIVED
STATE HWY ENGR
OCT 17 '72
REFER TO
FOR

| Info | Inves | R/D | D/R | Sign | Act | File |
|---|---|---|---|---|---|---|
| | | | | | | ✓ |

OREGON STATE
HIGHWAY DIVISION

HIGHWAY BUILDING • SALEM, OREGON • 97310

October 12, 1972

Mr Edwards [illegible] cy Mr Baldwin 10-17-72

Mr. Ray Bane, P.E.
Assistant Vice President
Sverdrup & Parcel and Associates, Inc.
P. O. Box 369
Bellevue, WA 98004

NOTED
A. E. JOHNSON

Dear Mr. Bane:

Columbia River Bridge, I-205
Bridge No. 9555

This will confirm the telephone conversation with Mr. Allen of your office on Monday, October 9, on the subject of the pathway on the I-205 bridge. The Federal Highway Administration has denied our latest request to include the pathway with financing by federal-aid funds. Based on this action, no further consideration is to be given to the pathway. The design of this structure should proceed without provisions for such a facility.

NOTED
TOM EDWARDS

I have discussed with our legal counsel the possibility of proceeding with the test pile and load test program. They will be contacting counsel for the Port of Portland to determine if it is prudent to proceed with this exploratory work. I will keep you advised on these developments.

cc P4

We would appreciate receiving a plan and elevation drawing of the structure with your best estimate of footing elevations shown thereon as soon as such a drawing is available.

Very truly yours,

George M. Baldwin
Administrator of Highways
By

ORIGINAL SIGNED
Walter J. Hart
Bridge Engineer
WALTER J. HART

WJH:dh

cc F. B. Klaboe
A. E. Johnson
H. S. Coulter
H. A. Schell

RECEIVED
OCT 12 1972
OFFICE OF
A. E. JOHNSON
ASSISTANT STATE HIGHWAY ENGINEER

8905

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JUN 19 1972
Consult
FOR FILING

June 15, 1972

**TO** Mr. Glen L. Green
Acting Division Engineer
Federal Highway Administration

549

**FROM** A. E. Johnson
Assistant State Highway Engineer

**SUBJECT** Preliminary Pier Plans
Columbia River Bridge
Oregon Project I-205-7(2)302

Attached is a copy of a letter from our consultants, Sverdrup & Parcel, with their comments on the items raised in your May 11 letter.

Attachment

bc George M. Baldwin
Tom Edwards
F. B. Klaboe
Walt Hart
H. S. Coulter (enc.)

WJH:dh ja

SVERDRUP & PARCEL AND ASSOCIATES, Inc.

June 1, 1972

Oregon State Highway Division
Highway Building
Salem, Oregon 97310

Attention: Mr. Walter J. Hart
Bridge Engineer

Gentlemen:

Subject: I-205 Columbia River Bridge
Bridge 9555

We have reviewed the Federal Highway Administration comments in their May 11, 1972, memorandum and offer this information to assist in your reply.

The following criteria have been adopted for design of river piers:

| | | |
|---|---|---|
| 1) | Normal Pool | Elev. + 2.5 |
| 2) | Flood Pool | Elev. +28.0 |
| 3) | River Bed | |
| | Main Channel | Elev. -37.5 |
| | Secondary Channel | Elev. -16.5 |
| 4) | Type of Construction | Cofferdam |
| 5) | High Water for Cofferdam | Elev. +12.0 |
| 6) | Scour Computations | Bulletin No. 4, Iowa Highway Research Board |
| 7) | Piling capacities and resistance to uplift to be verified by test piles. | |

River piers may be protected against scour either by embedding their footings below the anticipated depth of scour or by placing riprap above their footings to minimize the depth of scour. Elevations at Piers 14 through 26 for the alternative scour protection methods compare as follows:

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BRIDGE DIVISION

| | Scour Protection | |
|---|---|---|
| | By Embedment | By Riprap |
| Top of Sheet Pile | +15.0 | +15.0 |
| Top of Footing | -45.0 | -21.0 |
| Depth of Footing | 8' to 15' | 5' to 12' |
| Depth of Seal Course | 20' to 25' | 15' to 20' |
| Embedment of Sheet Pile | 20' to 25' | 15' to 20' |
| Average length of Sheet Pile | 120'± | 80'± |

It is apparent that even with the use of riprap, the river pier cofferdams are an expensive major undertaking, and that without riprap the cofferdams reach a height where other types of construction should be considered. We therefore recommend riprap scour protection for river piers constructed in sheet pile cofferdams.

Anticipated foundation elevations for the river piers are:

| | Top of Footing | Pile Tip |
|---|---|---|
| Piers 12 and 13 | -42.0 | -75± (Pier 13 only) |
| Piers 14 through 17 | -21.0 | -95± |
| Piers 17 through 21 | -21.0 | -105± |
| Piers 22 through 26 | -21.0 | -110± |

We plan to locate construction joints at the bottom of column capitals and/or at the top of bottom slab of the box girder, thereby eliminating a feather edge at the top of capital.

Very truly yours,

SVERDRUP & PARCEL AND ASSOCIATES, Inc.

R. Jack Allen

R. Jack Allen, P. E.
Project Engineer

cc: H. Scott Coulter

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JUN 2 1972
BRIDGE DIVISION

Form FHWA-121 (12-67)
UNITED STATES GOVERNMENT

# *Memorandum*

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

Box 300
Salem OR 97308

TO : Mr. George M. Baldwin, Administrator of Highways
Salem, Oregon
ATTN: A. E. Johnson

DATE: May 11, 1972

In reply refer to: 10-35.6

FROM : for R. E. Simpson, Division Engineer
Salem, Oregon

5-15-72
REFERRED
AL
BY DEPUTY [illegible]

SUBJECT: Oregon Project I-205-7(2)302
Preliminary Pier Plans
Columbia River Bridge

Comments from our Washington office have been received on your March 22, 1972 submission. These comments are outlined below for your consideration.

> "Hydraulics
>
> The proposed pier shape appears to be the same as Scheme D in your memorandum of August 13, 1971. As noted in our memorandum of August 20, 1971, that shape should be acceptable even though the river attack angle may vary from zero degrees.
>
> It is hoped that further consideration is being given to evaluation of the riprap design based on existing installations, as we previously suggested.
>
> "Structural
>
> We note that the fillet of the pier capital has a feather edge at its intersection with the superstructure. If the joint at the pier and the superstructure is a construction joint, we question the reliability of maintaining this feather edge of the fillet. We would suggest that this feather edge be blunted or truncated."

We expect the consultant has considered and adopted placing the piers below the scour line eliminating the need for riprap. If this is not the case we would like to know.

Please have your consultant furnish the footing elevation of the piers and the tip elevation of the piles. We would like to review this information soon.

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MAY 17 1972
BRIDGE DIVISION

NOTED
TOM EDWARDS

RECEIVED
MAY 12 1972
OFFICE OF
STATE HIGHWAY ENGINEER

BUY U.S. SAVINGS BONDS REGULARLY ON THE PAYROLL SAVINGS PLAN

GPO 917-344

84C5 Consult

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MAY 25 1972
FOR FILING

**OREGON STATE**
**HIGHWAY DIVISION**

HIGHWAY BUILDING • SALEM, OREGON • 97310

May 22, 1972

Sverdrup & Parcel & Associates, Inc.
P O Box 369
Bellevue, Washington 98004

Attention: Mr. R. Jack Allen

Dear Mr. Allen:

Columbia River Bridge
I-205
Bridge No. 9555

We have received correspondence dated April 12, 1972 and May 11, 1972, from the Federal Highway Administration relative to the design of the Columbia River (I-205) Bridge. Copies of that correspondence are attached. The questions raised in their April 12 letter have previously been referred to you. We would appreciate your comments on the items questioned in both the letters of April 12 and May 11.

In your April 18, 1972 letter you indicated that Station 27+17 was an appropriate dividing line between a construction contract for the Washington shore work and the river construction. Are there any conditions to terminating the land construction at Station 27+17, such as work on the river portion of the project.

We have checked with our legal staff on a possible date when we may be able to proceed with additional load bearing tests and test piling on the project. Our legal staff indicates that questions relative to the Port of Portland's expansion are now under consideration by the courts. They estimate that it may be six to eight months before an answer is forthcoming from the courts.

Very truly yours,

**NOTED**
**A. E. JOHNSON**

George M. Baldwin
Administrator of Highways
By
Walter J Hart
Walter J. Hart
Bridge Engineer

RECEIVED
MAY 23 1972
OFFICE OF
STATE HIGHWAY ENGINEER

WJH/ag

cc A. E. Johnson
H. S. Coulter
H. A. Schell

RECEIVED
APR 1

8905

FOR FILING

Consult

Form FHWA-121 (12-67)
UNITED STATES GOVERNMENT

# *Memorandum*

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
Box 300
Salem OR 97308

**TO** : Mr. George M. Baldwin, Administrator of Highways
Salem, Oregon

**DATE:** April 7, 1972

**In reply refer to:** 10-35-FA

**FROM** : R. E. Simpson, Division Engineer
Salem, Oregon

**SUBJECT:** Oregon Project I-205-7(2)303
Columbia River Bridge
Supplement to Consultant Agreement with Sverdrup & Parcel

cy - Bridge
Young
Skoog
Paul Hatchker
H S Coulter
4-13-72

Reference is made to Mr. Johnson's April 4 letter on the above subject. We hereby acknowledge that verbal authorization to proceed with the feasibility study for the construction of a pedestrian-bikeway on the subject structure was given on February 8, 1972. Also because the preliminary phases of the work under the original agreement are essentially under a lump sum payment and were substantially completed prior to the introduction of the bikeway concept it is acknowledged that this feasibility study is beyond the scope of the price adjustment as allowed under Sections I, A, S & III, 11. of that agreement.

In view of the above we hereby approve as a supplement to the Consultant Agreement Mr. Johnson's March 29 letter to Sverdrup & Parcel and Associates which has been endorsed as satisfactory by Mr. R. D. Bane on March 29, 1972.

4-12-72
Johnson

RECEIVED
APR 11 1972
OFFICE OF
STATE HIGHWAY ENGINEER

NOTED
TOM EDWARDS

NOTED
A. E. JOHNSON

BUY U.S. SAVINGS BONDS REGULARLY ON THE PAYROLL SAVINGS PLAN

RECEIVED
APR 5 - 1972

April 4, 1972

519

Mr. R. E. Simpson
Division Engineer
Federal Highway Administration
Box 300
Salem, OR 97308

Dear Sir:

I-205 Columbia River Bridge
Bridge No. 9555
Your File 08-35-ED

Enclosed are four copies of a supplemental letter agreement endorsed by Sverdrup & Parcel and Associates, Inc. for their work in preparing a feasibility study for a pedestrian-bikeway on the subject bridge. The original agreement, dated September 30, 1970 and approved by you October 1, 1970, made no mention of a pedestrian-bikeway nor was one shown on the cross sections contained in Exhibit F of the agreement.

Work on the feasibility study and any subsequent final design work done, if the concept of a pedestrian-bikeway is approved, represents work beyond the scope of the original agreement. Additional design costs will be incurred, since the geometry of the twin structures is changed to two unsymmetrical structures.

This matter has been discussed previously with Mr. Burghardt and Mr. Schell of your office, who gave his tentative approval to proceed with the feasibility study on February 8, 1972.

Article III, Section 11, on page 10 of the original agreement, entitled "Changes in Work", states that adjustments in compensation owed the consultant for ordered changes shall be made as mutually agreed upon. The fee schedule as outlined in the supplemental letter agreement is essentially the same as that used to establish lump sum fees for the original agreement.

May I have your approval of this letter amendment to the original agreement.

Very truly yours,

George M. Baldwin
Administrator of Highways

By

A. E. Johnson
Assistant State Highway Engineer

Attachments

cc/enc. Mr. W. M. Foster
Asst. Dir. of
Highway Development
Washington State Dept.
of Highways

cc Mr. R. Jack Allen
Sverdrup & Parcel
and Associates, Inc.

bc George M. Baldwin
Tom Edwards
F. B. Klaboe
Walt Hart
L. H. Young (enc.)
Vern Skoog "
Paul Hatcher "
H. S. Coulter "

RJW:ag ja

SVERDRUP & PARCEL AND ASSOCIATES, Inc.
*Consulting Engineers*
505 - 106TH AVENUE N. E.
P. O. BOX 369
BELLEVUE, WASHINGTON 98004

March 20, 1972

NOTED
A. E. JOHNSON

cy Walt Hart
3-21-72
w/ letter to Fed Hwy
for report, approval.

Oregon State Highway Division
Highway Building
Salem, Oregon 97310

Attention: Mr. A. E. Johnson
Assistant State Highway Engineer

Gentlemen:

Subject: I-205 Columbia River Bridge
Bridge 9555
Engineering Proposal
Pedestrian-Bicycle Path Location Study

Pursuant to our correspondence and conversations regarding the subject study, we submit this proposal for engineering services. The services cover a study and report of the best location for an eight-foot wide pedestrian-bicycle path on the I-205 Columbia River Bridge. The study will include cost estimates, and prime consideration will be given to the safety of bicyclists, pedestrians, and motorists.

As compensation for the services described above, we propose that payment be made on a cost reimbursable basis plus a fixed fee. Costs will be computed by multiplying our productive payroll costs by a factor of 1.95 to include salary-related and general overhead costs. Out of pocket (direct costs) expenses are also reimbursable. To the reimbursable costs, a fixed fee of $800.00 shall be added. We estimate that the total costs to you for the proposed services will not exceed $7,000.00.

NOTED
W. J. HART

It is anticipated that the study will be completed and the report submitted to you prior to March 31, 1972.

Very truly yours,

SVERDRUP & PARCEL AND ASSOCIATES, Inc.

R. D. Bane

R. D. Bane, P. E.
Assistant Vice President

RECEIVED
MAR 21 1972
OFFICE OF
STATE HIGHWAY ENGINEER

8905
Consult

Genl files

**OREGON STATE**
**HIGHWAY DIVISION**

HIGHWAY BUILDING • SALEM, OREGON • 97310

April 4, 1972

Sverdrup & Parcel & Associates, Inc.
P. O. Box 369
Bellevue, Washington 98004

Attention Mr. R. Jack Allen

Gentlemen:

Columbia River Bridge, I-205
Bridge 9555

I have investigated the possibility of conducting the test pile and soil bearing load tests on the Washington shore independent of the test pile program in the river. A property owner on the Washington side of the river is one of the most active and vocal opponents of any highway or airport development work in this area. For this reason we will be unable to do any further foundation investigative work for the proposed structure until the pending litigation has had its day in court.

copy

The study for a proposed walkway on the Columbia River Bridge has been submitted to the Federal Highway Administration for their consideration. The Federal Highway Administration has indicated a possible reluctance to approving a pedestrian-bikeway on the structure which will make the structure unsymmetrical about centerline. One possible way to maintain a symmetrical section would be to use five-foot walks each side. We would appreciate your comments on the merits of this proposal.

Very truly yours,

George M. Baldwin
Administrator of Highways
By
ORIGINAL SIGNED
WALTER J. HART
Walter J. Hart
Bridge Engineer

**NOTED**
**A. E. JOHNSON**

RECEIVED
APR 4 1972
OFFICE OF
STATE HIGHWAY ENGINEER

WJH:dh

cc A. E. Johnson
H. S. Coulter

8905
Consult.

3-20-72

# SUPPLEMENTAL STUDIES
# FOR A
# PEDESTRIAN-BICYCLE PATH
# ON THE
# PROPOSED INTERSTATE ROUTE I-205
# COLUMBIA RIVER BRIDGE

Prepared for

OREGON STATE HIGHWAY COMMISSION

MARCH 20, 1972

SVERDRUP & PARCEL AND ASSOCIATES, Inc.
Consulting Engineers

Bellevue, Washington - St. Louis, Missouri

RECEIVED
MAR 23 1972
BRIDGE DI[illegible]

# FOREWORD

This report presents the results of a study for a pedestrian-bicycle path on the proposed I-205 bridge across the Columbia River. It is submitted in response to a request by the Oregon State Highway Division by letter of February 8, 1972.

The purpose of the study is to determine the best location for an eight-foot wide path on the bridge, giving prime consideration to the safety of pedestrians, cyclists, and motorists.

## SUMMARY

This report covers the study for the addition of a pedestrian-bicycle path to the proposed I-205 Columbia River Bridge.

Alternative locations of the path on the bridge are presented and compared with respect to safety, access, and appearance. The view of the surrounding area from these locations, the effect of the installation on established geometrics, and estimated cost of the addition are also discussed.

If a pedestrian-bicycle path is required on this structure, construction of the path on the west side of the bridge, connected by a structural ramp near SR-14 (Lewis and Clark Highway) and an at-grade ramp at Marine Drive, is recommended.

The estimated cost of this pedestrian-bicycle path addition to the bridge is approximately $3,800,000.

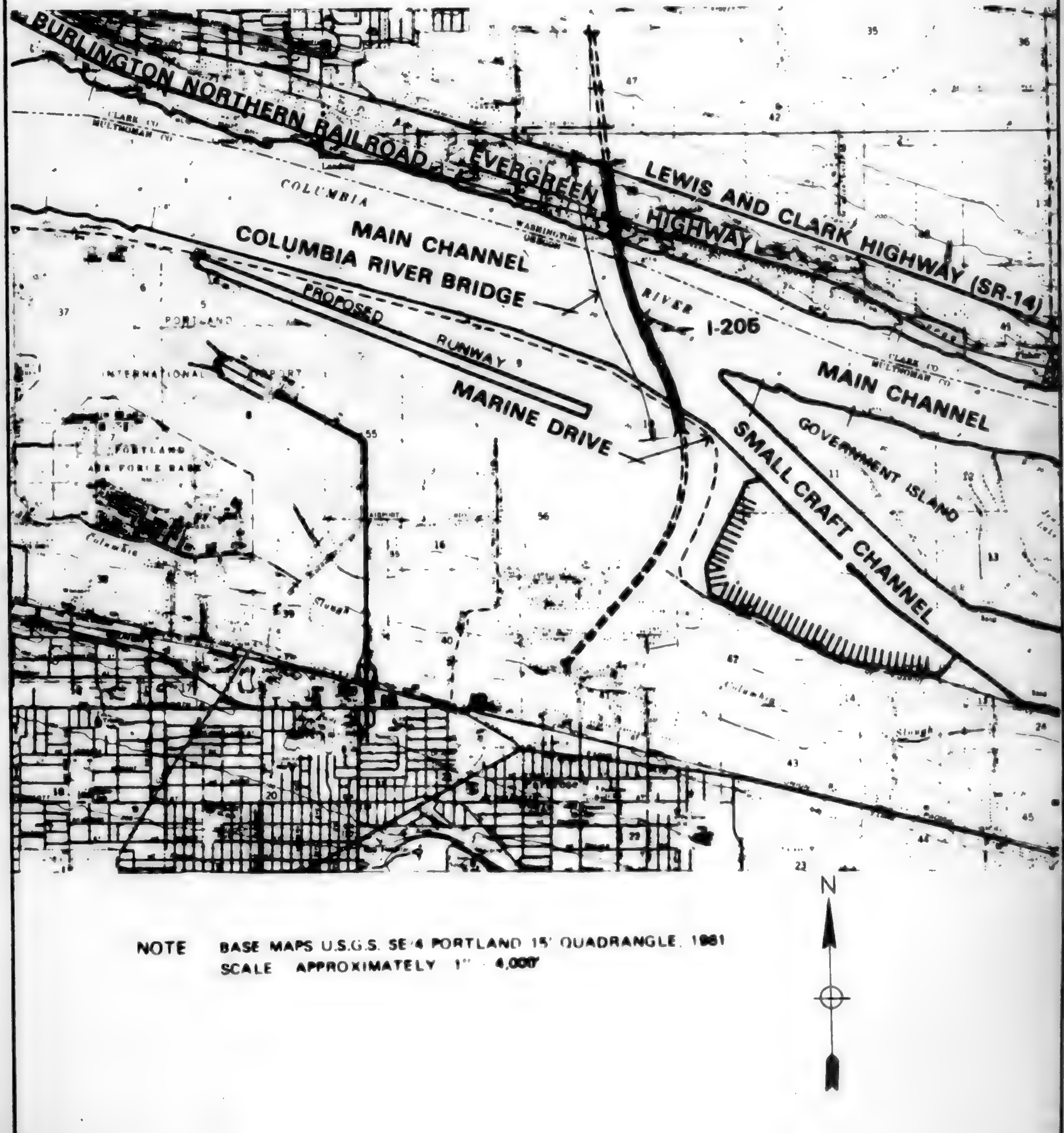
## INTRODUCTION

Route I-205 is a circumferential Interstate Highway which passes to the east of Portland, Oregon and Vancouver, Washington. A bridge, presently being designed, will carry this highway across the Columbia River as shown on Figure 1.

A system of bicycle trails has been proposed in the Portland-Vancouver area, and a path on the I-205 Columbia River Bridge has been suggested as part of that system. Although a comprehensive plan has not been adopted, probable trail locations will be near Marine Drive on the Oregon shore and near Evergreen Highway on the Washington shore.

This report presents several possible locations of a pedestrian-bicycle path on the bridge and the necessary ramps, on-structure or on-grade, to connect with local facilities.

Design criteria, safety of the traveling public, aesthetic impact of the addition to the structure, and construction costs are discussed and conclusions are drawn for a recommendation of the best pedestrian-bicycle path location.


BURLINGTON NORTHERN RAILROAD
EVERGREEN HIGHWAY
LEWIS AND CLARK HIGHWAY (SR-14)
CLARK CO
MULTNOMAH CO
COLUMBIA
RIVER
WASHINGTON
OREGON
MAIN CHANNEL
COLUMBIA RIVER BRIDGE
PROPOSED RUNWAY
I-205
PORTLAND INTERNATIONAL AIRPORT
MAIN CHANNEL
MARINE DRIVE
SMALL CRAFT CHANNEL
GOVERNMENT ISLAND
PORTLAND AIR FORCE BASE
N

NOTE BASE MAPS U.S.G.S. SE/4 PORTLAND 15' QUADRANGLE, 1961
SCALE APPROXIMATELY 1" = 4,000'

FIGURE I

## DESIGN CRITERIA

The following criteria have been derived in part from "Footpaths and Bike Routes - Standards and Guidelines", Oregon State Highway Division, January, 1972.

1. Width - A single two-way path shall be eight feet wide. Two one-way paths shall each be a minimum of four feet wide and preferably six feet wide.

2. Height - Minimum vertical clearance shall be ten feet.

3. Alignment - Maximum grade shall be ten percent. Minimum radius of curvature shall be twenty feet.

4. Design Load - Live load shall be in accordance with AASHO Sidewalk Loading. Railing load shall be in accordance with AASHO design load for Pedestrian Railing.

## PEDESTRIAN-BICYCLE PATH ON STRUCTURE

There are a number of locations (See Figure 2) that a pedestrian-bicycle path may take on the bridge superstructure. Some have advantages over others in regard to structural efficiency, safety, unobstructed view of the surrounding area, aesthetic impact, and construction costs. Salient features are discussed for these alternative locations in the following paragraphs and sections of this report.

### A. AT ROADWAY LEVEL ON CENTERLINE OF BRIDGE

The pedestrian-bicycle path may be situated at roadway level between the northbound and southbound structures. (See Figure 2a) The dual structures will have to be moved apart a sufficient distance to provide the 8-foot path plus the width of any additional parapet and railing protection.

This installation can be structurally achieved in several ways. As illustrated in Figure 3(a), complete independence of both structures can be maintained by mounting a path on one of the dual structures, which is widened to receive the path and an edge parapet. Separation between structures is held at 8", as in the established design concept.

Another possibility, as shown in Figure 3(b), is to widen one of the dual structures for the path and conceal the expansion opening under a projection of the other roadway parapet.

If a structure is widened to receive the path, an additional vertical web should be added to the cross section to

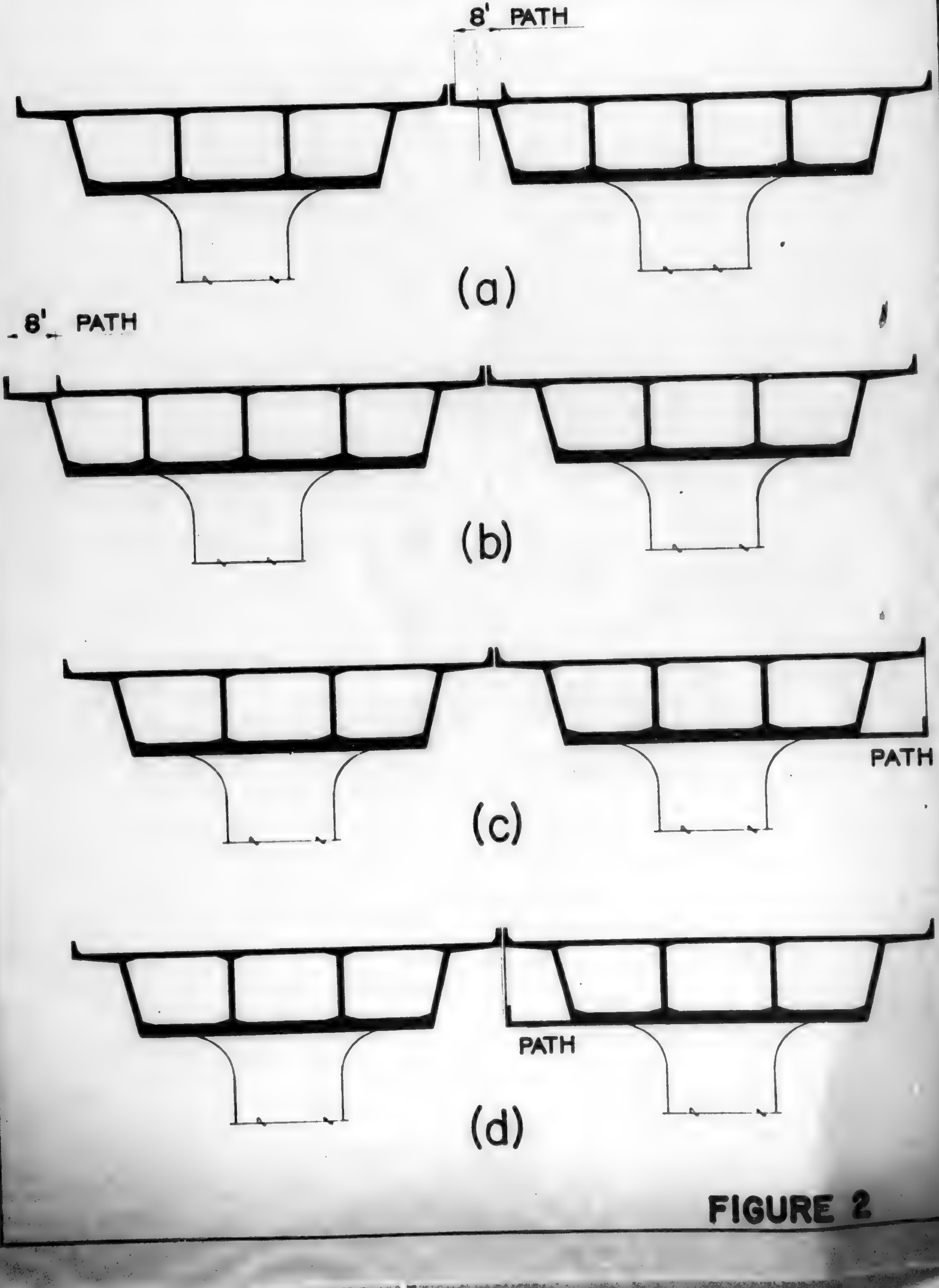

8' PATH
(a)
8' PATH
(b)
PATH
(c)
PATH
(d)

FIGURE 2

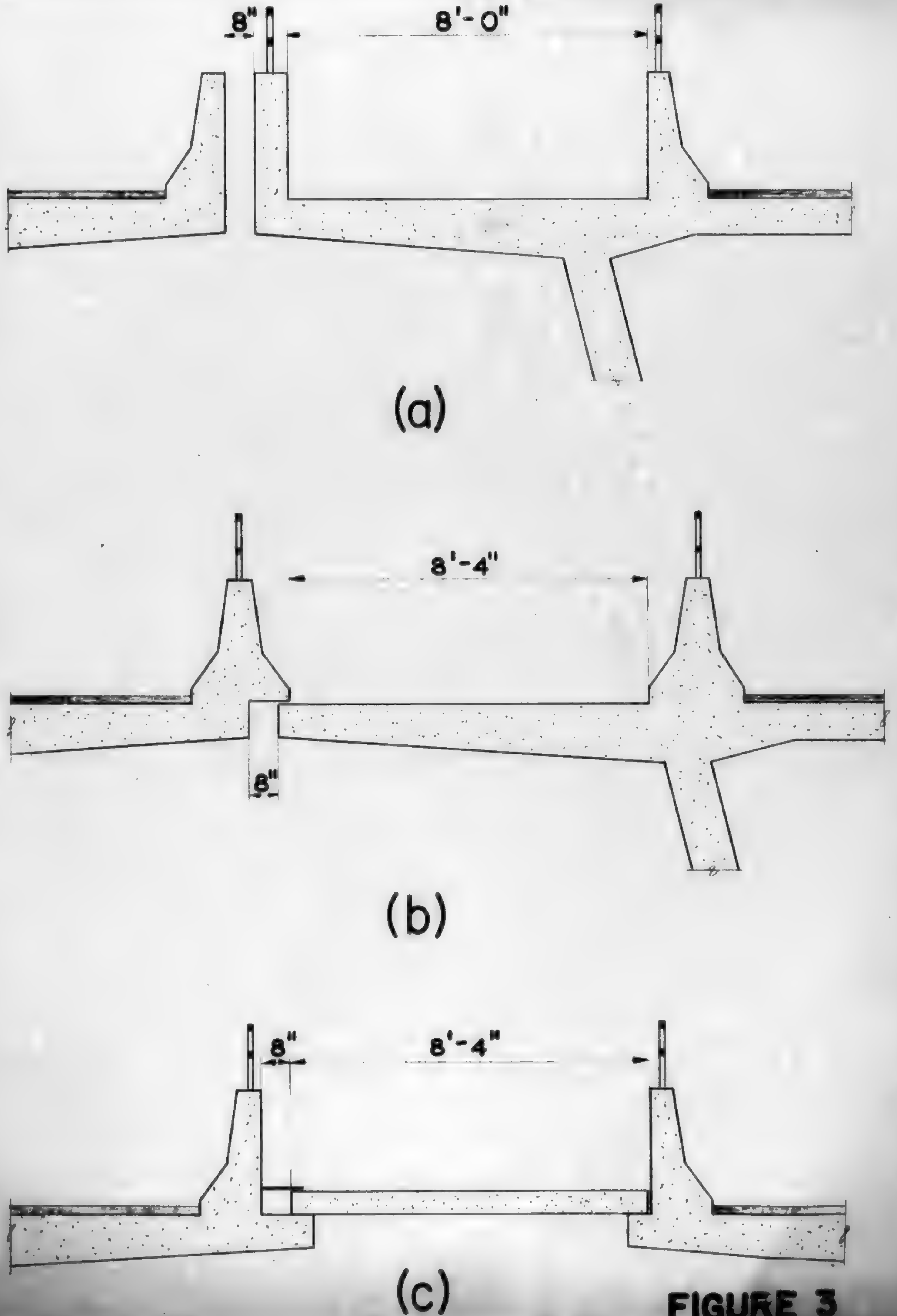

8"
8'-0"
(a)
8'-4"
8"
(b)
8"
8'-4"
(c)

FIGURE 3

maintain a reasonable top and bottom slab structural thickness. (See Figures 2a and 2b)

Still another method (See Figure 3c) is to place a floor slab, for the path, on a projection of the main slabs from the dual structures. One side is fixed against horizontal displacement, and the other allowed to slide on plates for any differential movement between the two main structures. A floor plate is utilized on the expansion side for protection of the user.

From the standpoint of safety of the traveling public, it appears that a pedestrian-bicycle path mounted on the bridge centerline, as shown in Figure 3(a), would be a satisfactory solution.

The users' view, from a centerline-mounted path, is restricted more than from some other location on the bridge. The profile grade, sloping downward to the south, and the superelevation and superelevation transitions restrict the view of the horizon to an average of about 210°. The view from the centerline is further restricted by motor vehicles traveling on both sides of the path.

The appearance of the bridge is generally unaffected by the addition of this pathway, except for access ramps at either end. Ramps are discussed in detail in another section of this report.

## B. AT ROADWAY LEVEL ON OUTSIDE OF STRUCTURE

With little or no adjustments to the horizontal and vertical geometry of the established plan, an 8-foot wide pedestrian-bicycle path can be added to the outside edge of either roadway or both roadways (See Figure 2b). The structural arrangement is similar to the scheme for a centerline-mounted path as shown in Figure 3(a).

For safety, a parapet is located on the exterior edge, and a fence or railing set on top to provide protection 4'-6" above the top of slab. There are some locations on the bridge where the observer's eye is as much as 200 feet above ground or water, and prevention of an accidental fall is mandatory.

The view from a side-mounted path is less obstructed than from the center-mounted location. An average of 240° of horizon can be seen from the east side and 280° from the west side, due to the gradient and superelevation conditions. The vehicular traffic is an interruption to the view from only one side.

A minor disturbance to the appearance of the bridge is created by the side-mounted railing and any access ramps.

## C. BELOW ROADWAY DECK

A pedestrian-bicycle path can be set below the cantilever projection of the roadway slab on either the outside or on centerline as shown in Figure 2c or 2d.

The separation of traveled ways makes the path invulnerable to vehicular traffic and some protection from the elements is also afforded. Undesirable activities may be encouraged, however, because pathway users are essentially hidden from view and because access to the path is provided only near the bridge ends, which are over a mile apart. Moreover, pedestrians and cyclists will be reluctant to use the path at night unless it is lighted.

The view from the side-mounted path is restricted to 180° of horizon, while the center-mounted location is completely shut off from long-range views.

The side-mounted path under the roadway, as well as its access ramps, are detrimental to the appearance of the bridge, while only the ramps of the center-mounted path detract from the appearance.

## BRIDGE RAIL AND FENCE

Several factors affect the selection of a type of rail or fence to be used for the pedestrian-bicycle path. Safety, access from one part of the structure to another in emergencies, appearance, and sight obstruction are all of importance.

For the safety of the cyclist, the selection of a smooth-faced parapet or barrier of a height approximating the level of the bicycle seat is desirable. A fence or rail should be added to the top of this parapet to a height of about 4'-6" to prevent an accidental fall.

This fence or rail can be of several varieties of tubular construction, woven wire or fabricated steel. Since a trip across the Columbia River Bridge can be an exciting experience, provided the view is not unduly obstructed, a strong but open-type rail is suggested.

A rail composed of 1" square bars, as shown on Figure 3, will provide safety, purposeful access, minimal obstruction to the view, and minimal effect on appearance of the bridge.

## ACCESS RAMPS

Evergreen Highway in Washington and Marine Drive in Oregon are considered to be logical routes for a portion of a proposed comprehensive pedestrian-bicycle path system. As the Columbia River Bridge crosses over these two routes, ramps will have to be provided to permit access from the ground-level route to the bridge-mounted path.

The bridge crosses Evergreen Highway approximately 140 feet above the ground. A direct connection ramp, ground-to-bridge at this location, is not practical under this circumstance, either for the comfort of the user or from the appearance of a structural arrangement. However, the ground and bridge profiles are oriented such that approximately 1200 feet to the north of Evergreen Highway, the bridge crosses over the Lewis and Clark Highway about 35 feet above ground. It is apparent, therefore, that a ground-to-bridge ramp can be placed in the area between the two highways which can be further connected by an at-grade facility leading to either or both highways. Such an arrangement is shown on Plate 1.

The ground contours and planned traffic movements at the northern terminus of the bridge do not lend themselves to a scheme which allows the bridge-mounted path to extend over the abutment and return at grade to a local trail.

At Marine Drive, several possibilities exist for positioning a pedestrian-bicycle path access ramp, depending on the position of that facility on the bridge superstructure. If the pedestrian-bicycle path is placed on either of the exterior edges of the bridge, it should be extended across the bridge abutment and then be connected with Marine Drive by an at-grade ramp. If a centerline-mounted pedestrian-bicycle path is adopted, a structural ramp suspended from the bridge superstructure should terminate at the northerly edge of Marine Drive. These concepts are shown on Plates 2 and 3.

## LOCATIONS COMPARED

In order to arrive at a conclusion that one scheme or a combination of elements from several schemes may be the better way of constructing a pedestrian-bicycle path on the Columbia River Bridge, the advantages and disadvantages of each location are compared as follows:

### A. At Roadway Level on Centerline of Bridge

| Advantages | Disadvantages |
|---|---|
| Safer than locations below roadway deck | Dissimilar structures for northbound and southbound roadways increases unit costs |
| Second best view of surrounding area | Structural ramps at ten percent grade required at both ends |
| Appearance of bridge unaffected except by access ramps | Revision of established geometrics for bridge and interchange required |

### B. At Roadway Level on Outside of Structure

| Advantages | Disadvantages |
|---|---|
| Safer than locations below roadway deck | Dissimilar structures for northbound and southbound roadways increases unit costs |
| Best view of the surrounding area | Structural ramp at ten percent grade required at north end |
| Appearance of bridge will have minor conflicts | Minor effect to bridge geometrics |
| Ramp at grade possible on southerly end | |

### C. Below Roadway Deck

| Advantages | Disadvantages |
|---|---|
| Adjustment of established geometrics not required | Least safe of any location for the user |
| Ramp grades are less and more easily used | Structural ramps required at both ends |
|  | Least view of surrounding area |

These comparisons indicate that a roadway level pedestrian-bicycle path is as safe as any possible location on the Columbia River Bridge. In addition, the edge-mounted path has advantages over the centerline-mounted path in that: a ground-level ramp at a slight grade can be constructed at the southern end, the view from this location on the bridge is greater, little or no revision to established geometrics is required, and the appearance of the structure is less affected with the elimination of the southerly structural ramp.

## COST ESTIMATE

Since this study clearly indicates a roadway level location to be the safest location for a pedestrian-bicycle path, cost estimates have been prepared for the two routes considered for that location. A breakdown of increased substructure and superstructure estimated costs by States is as follows:

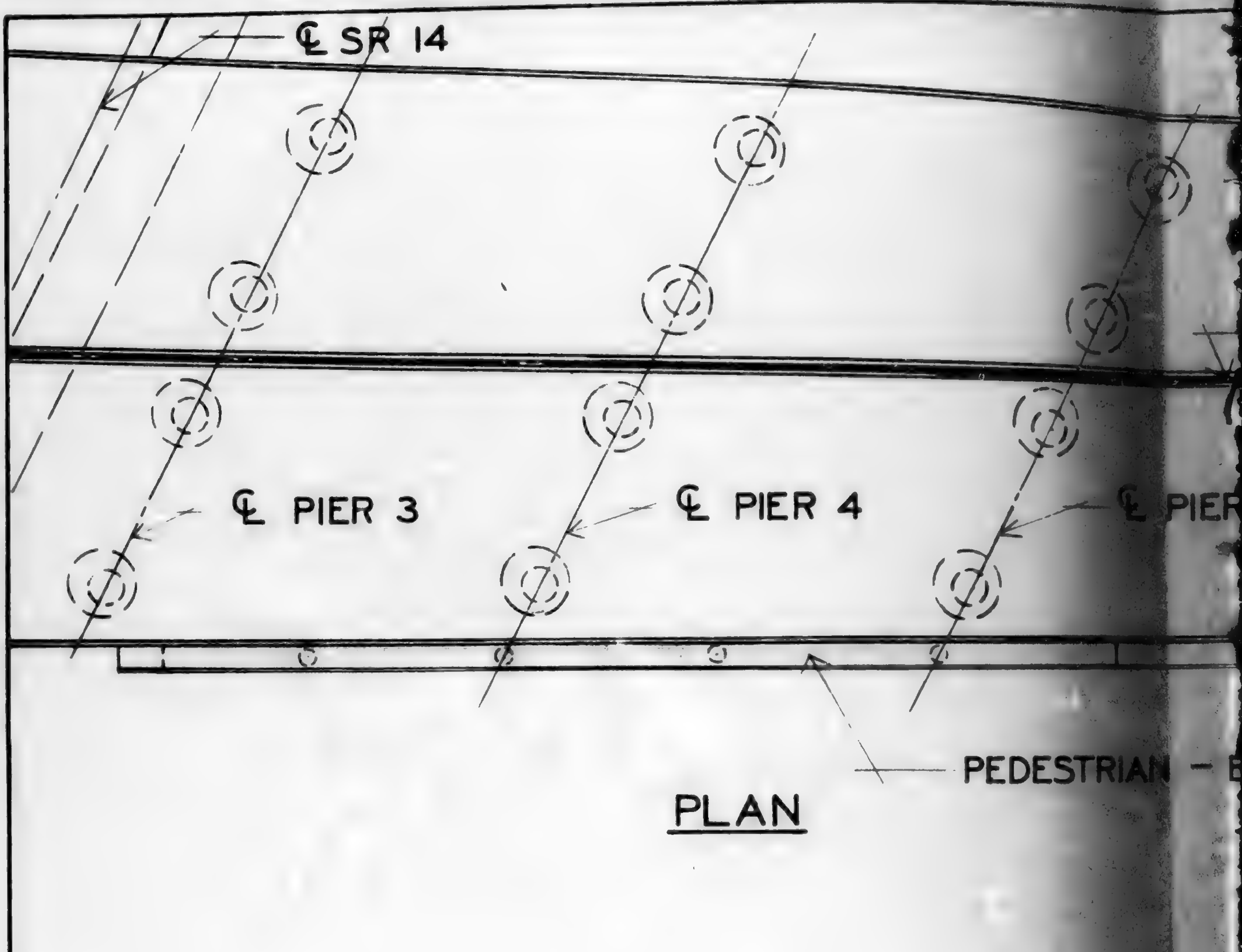
| | Centerline-Mounted Route | Edge-Mounted Route |
|---|---|---|
| Washington | | |
| Substructure | $ 320,000 | $ 379,000 |
| Superstructure | 599,000 | 614,000 |
| | $ 919,000 | $ 993,000 |
| Oregon | | |
| Substructure | $ 750,000 | $ 830,000 |
| Superstructure | 1,255,000 | 1,347,000 |
| | $2,005,000 | $2,177,000 |
| Total | $2,924,000 | $3,170,000 |
| 20% Engineering & Contingencies | 586,000 | 630,000 |
| Grand Total | $3,510,000 | $3,800,000 |

## CONCLUSIONS

Should the installation of a pedestrian-bicycle path be required on the I-205 Columbia River Bridge in order to complete a comprehensive plan for this type of transportation, then a location at roadway level on the west side of the structure is considered the most desirable.

This location is safe, accessible from the roadway in case of emergency, provides maximum view of the surrounding area, is easily reached from the southerly at-grade ramp, and detracts little from the appearance of the bridge.

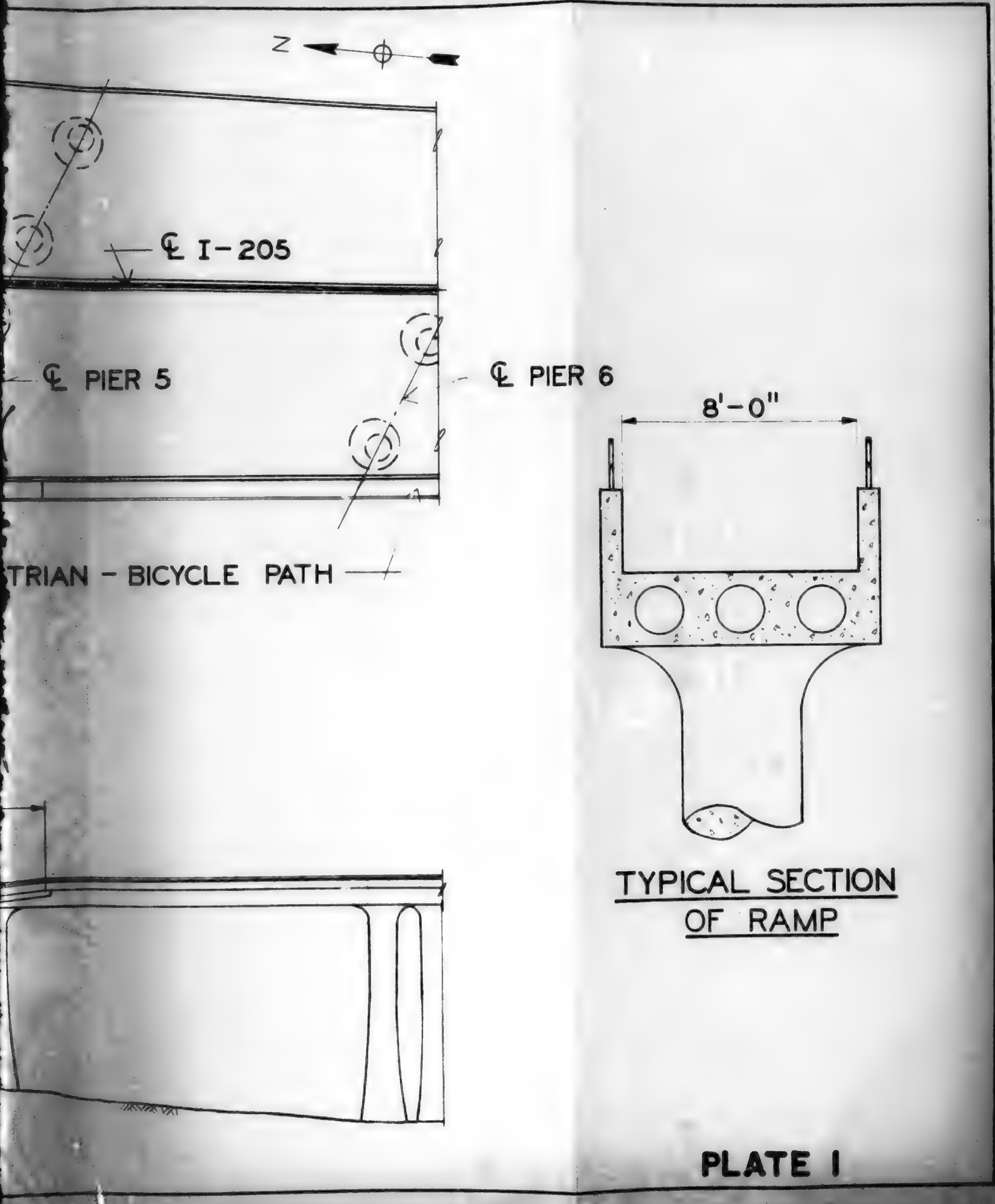
The pedestrian-bicycle path at this location would add approximately $3,800,000 to the cost of the structure which represents about 5.8 percent of the estimated total construction cost.



PLAN

ELEVATION

℄ SR 14
℄ PIER 3
℄ PIER 4
℄ PIER
PEDESTRIAN - B
328' ±
10% GRADE
ON RAMP


Z
℄ I-205
℄ PIER 5
℄ PIER 6
TRIAN - BICYCLE PATH
8'-0"

TYPICAL SECTION OF RAMP

PLATE I

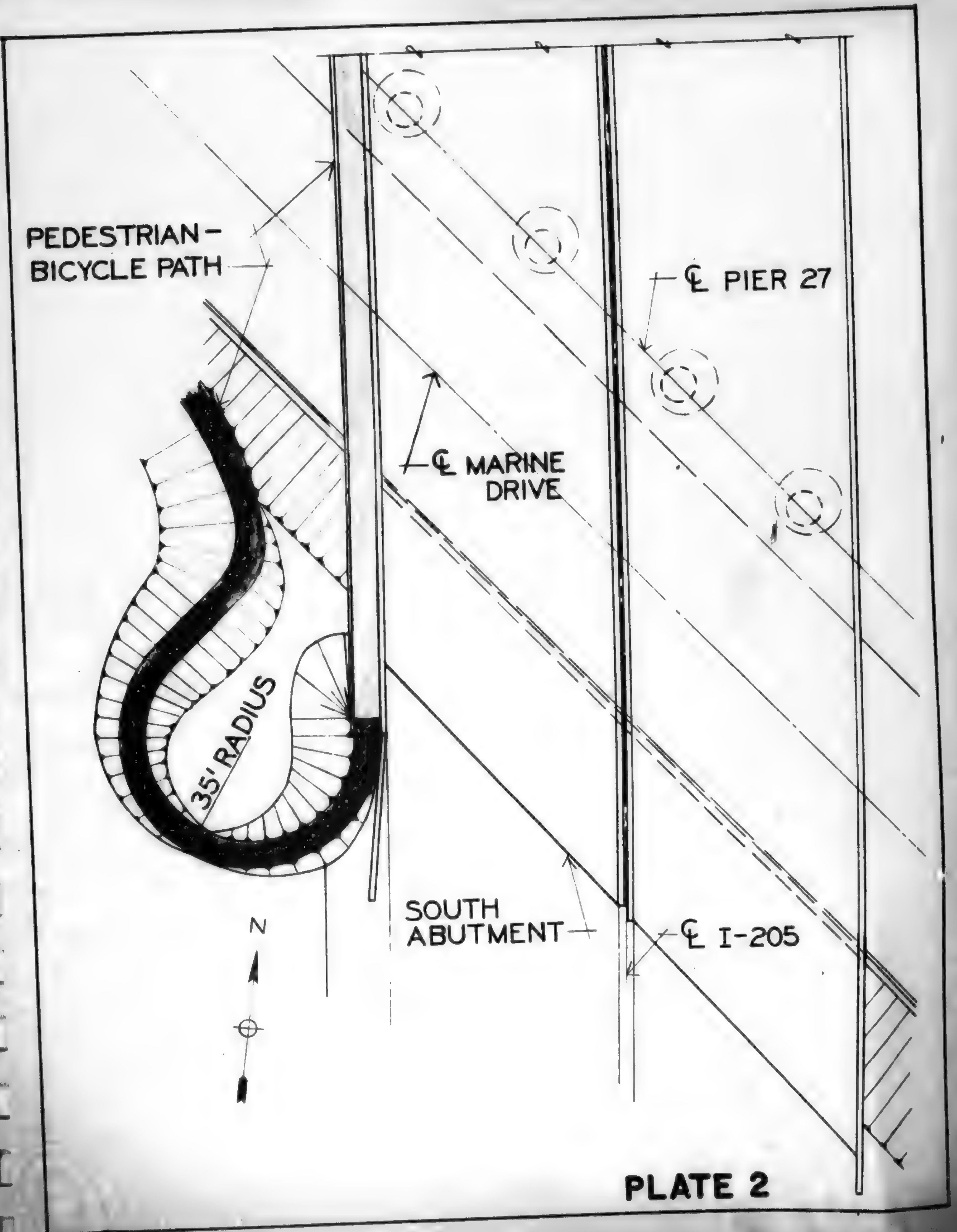
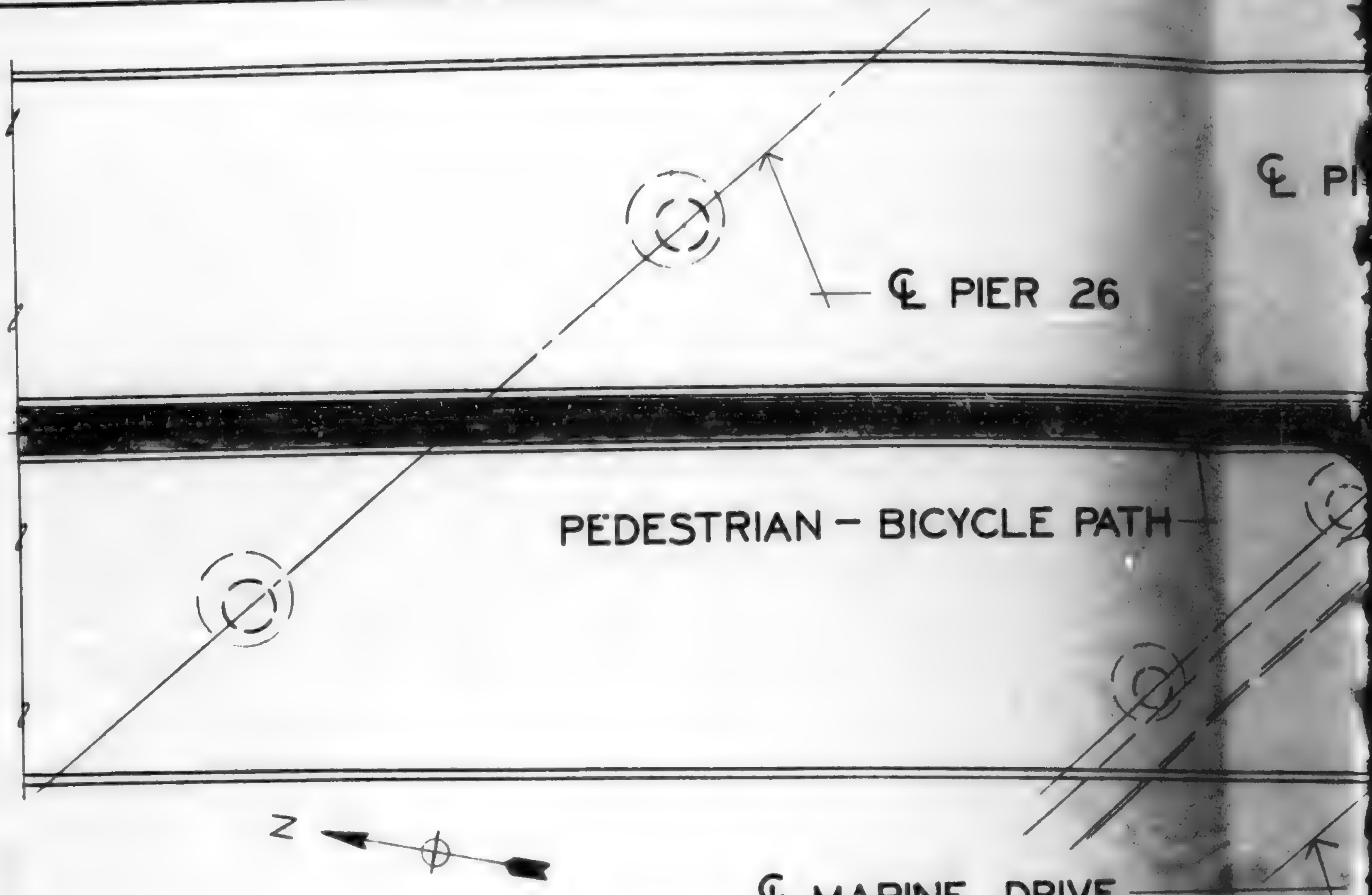
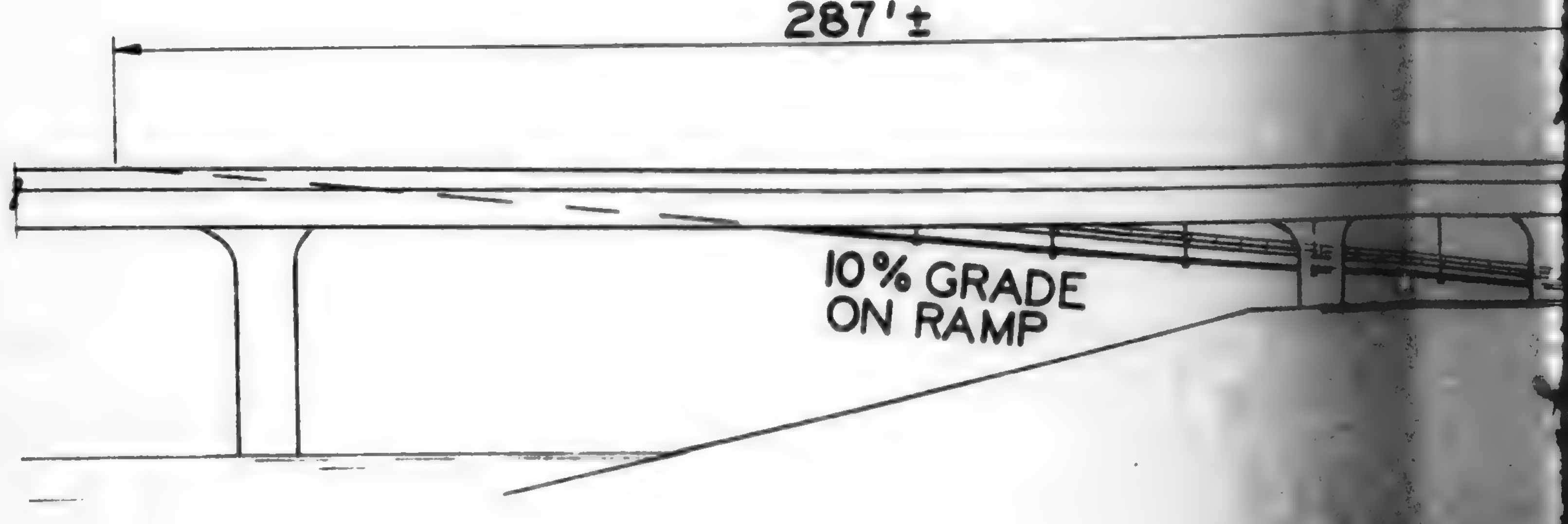

PEDESTRIAN-
BICYCLE PATH
℄ PIER 27
℄ MARINE
DRIVE
35' RADIUS
SOUTH
ABUTMENT
℄ I-205
N

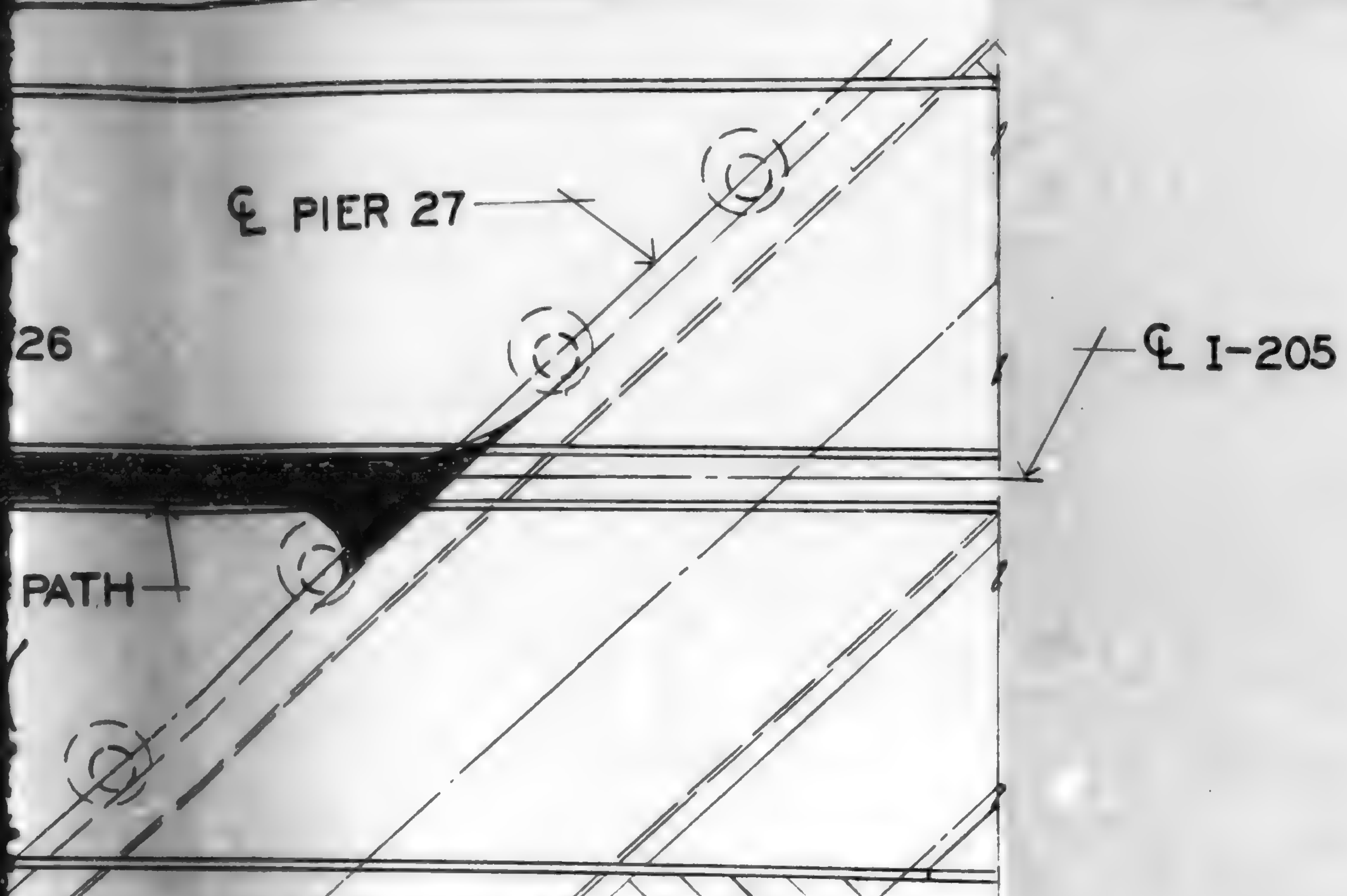
**PLATE 2**

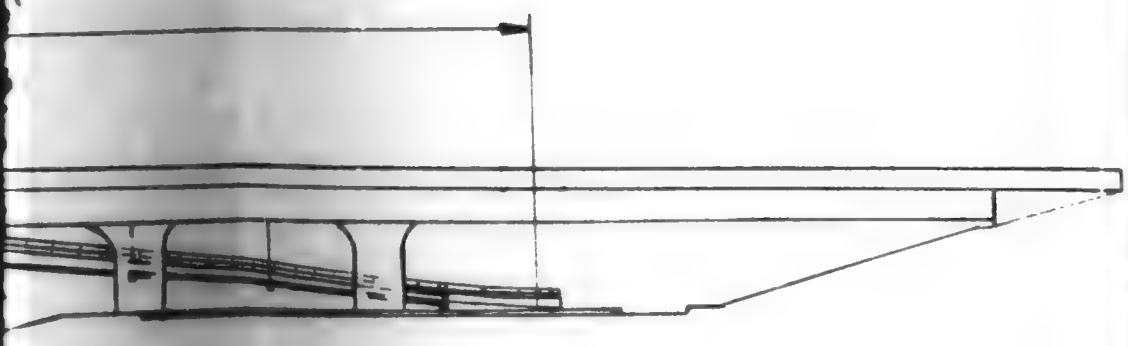

℄ PI
℄ PIER 26
PEDESTRIAN – BICYCLE PATH
℄ MARINE DRIVE

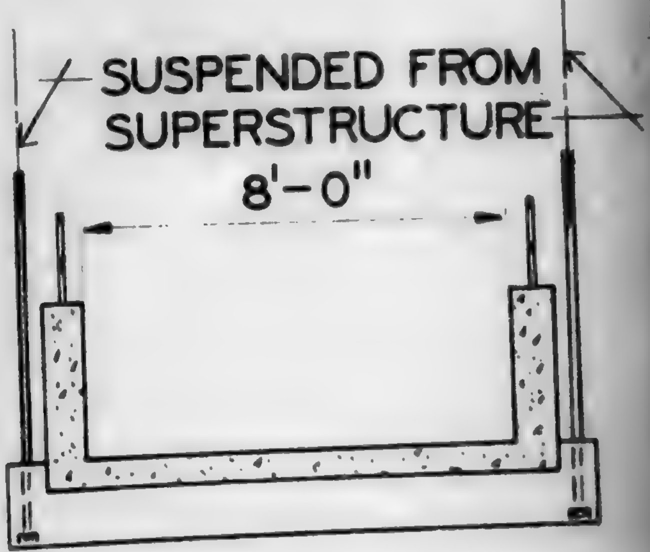
PLAN


287'±
10% GRADE ON RAMP

ELEVATION


℄ PIER 27
26
℄ I-205
PATH
VE




SUSPENDED FROM
SUPERSTRUCTURE
8'-0"

TYPICAL SECTION OF RAMP

PLATE 3

8405

Consult

FOR FILING

1859

**OREGON STATE**
**HIGHWAY DIVISION**

HIGHWAY BUILDING • SALEM, OREGON • 97310

March 17, 1972

Sverdrup & Parcel And Associates, Inc.
505 - 106th Avenue N. E.
P O Box 369
Bellevue, Washington 98004

NOTED
A. E. JOHNSON

Attention: Mr. R. Jack Allen, P. E.

Gentlemen:

I-205 Columbia River Bridge
Bridge No. 9555

We have reviewed your February 7, 1972 proposal to use forty foot mounting height bridge lighting units on the subject structure.

We believe that the thirty foot high bridge lighting units in a staggered configuration would be more desirable on this structure. Please incorporate the three line thirty foot height lighting system as specified in our agreement in the final design of this structure.

Very truly yours,

George M. Baldwin
Administrator of Highways
By

R.W. Ellison

R. W. Ellison
Bridge Administration Engineer

RWE/ag

cc: H. S. Coulter
A. E. Johnson
W. J. Hart
L. L. Wallace

RECEIVED
MAR 20 1972
OFFICE OF
STATE HIGHWAY ENGINEER

7105

Consult,

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FEB 9 - 1972

FO [illegible]

February 8, 1972

Mr. R. Jack Allen
Project Engineer
Sverdrup & Parcel and Associates, Inc.
P. O. Box 369
Bellevue, Washington

Dear Sir:

Re: Columbia River Bridge
I-205 Highway

We have reviewed the rail configuration drawing submitted with your letter of January 11 and the standard detail sheet submitted on January 26. The standard detail sheet is satisfactory as submitted. After further consideration of the rail geometry, we believe that the original rail section as shown on Exhibit E of our agreement is to be preferred. The median rail section is satisfactory as shown. A print of the structure's typical section with the preferred railing shown is attached.

We have indicated the rail cantilevered beyond the deck slab. The thought behind this is the maintenance of a smooth line on the rail. With the provisions for transverse post-tensioning of the deck, there may be a section of the deck slab which will be poured in place and which will allow for take-up in alignment between adjacent precast superstructure elements. The need for the rail overhang, therefore, may not exist. We would appreciate your comments on this.

The feasibility of carrying an eight-foot wide pedestrian-bikeway has now become a consideration on this project. We request that you make a study to determine where an eight-foot pathway could best be carried on the structure. Estimates of your proposal will be required.

In locating the pathway, prime consideration should be given to the safety of bicyclists, pedestrians and motorists. For purposes of the estimate, it should be assumed that the bikeway will connect to Marine Drive at the Oregon end of the structure. You should contact Mr. Richard Carroll of the Washington Department of Highways at Vancouver.

Very truly yours,

George M. Baldwin
Administrator of Highways

By

A. E. Johnson
Assistant State Highway Engineer

Attachment

cc Mr. Richard Carroll
District Engineer
Washington Department
of Highways
P. O. Box 1717
Vancouver, Washington

bc George M. Baldwin
Tom Edwards
F. B. Klaboe
Walt Hart
H. S. Coulter

WJH:dh/AEJ:ja

SVERDRUP & PARCEL AND ASSOCIATES, Inc.
*Consulting Engineers*
505 - 106TH AVENUE N. E.
P. O. BOX 369
BELLEVUE, WASHINGTON 98004

Sta G.M.
dup back

January 10, 1972

Oregon State Highway Division
Highway Building
Salem, Oregon 97310

Attention: Mr. Walter J. Hart
Bridge Engineer

Gentlemen:

Subject: I-205 Columbia River Bridge
Bridge 9555

Enclosed for your consideration are prints of our proposed railing configuration for the subject bridge.

The roadway faces of median railings are as shown on Exhibit F of our engineering agreement. The distance from centerline of I-205 to roadway face of railing is increased to 1-foot 8-inches as shown in the Preliminary Design Report. This increased distance together with a 1-inch decrease in railing thickness provides an 8-inch gap between bridges which we deem adequate.

The metal rail portion of the parapet railing shown on Exhibit F has been deleted in accordance with our earlier discussions and the parapet railing has, therefore, been made identical to the median railing. Please note that the dimension out-to-out of parapet railings is 142-feet 0-inches instead of 142-feet 10-inches as shown on the navigational permit drawings.

Very truly yours,

SVERDRUP & PARCEL AND ASSOCIATES, Inc.

R. Jack Allen

R. Jack Allen, P. E.
Project Engineer

Enclosure

cc: H. Scott Coulter w/encl.

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JAN 11 1972
BRIDGE DIVISION

8905

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SVERDRUP & PARCEL AND ASSOCIATES, Inc.
*Consulting Engineers*
505 - 106TH AVENUE N. E.
P. O. BOX 369
BELLEVUE, WASHINGTON 98004

December 24, 1971

**NOTED**
**A. E. JOHNSON**

Oregon State Highway Division
Highway Building
Salem, Oregon 97310

**Attention:** Mr. Ivan D. Merchant
Bridge Engineer

Gentlemen:

**Subject:** Progress Report No. 6
Phase B - Final Design
Columbia River Bridge No. 9555

This report covers the period from December 11, 1971, to December 24, 1971. Progress of items of work is shown on the attached bar graph. We estimate that Phase B of the project is 7.0 percent complete.

PROGRESS TO DATE

Final design is underway on the basis of the pier location and span layout forwarded by letter dated December 2, 1971. Specifications for a test pile program have been submitted. Detailed design criteria and drawings of final pier configuration are being prepared.

CHRONOLOGY OF EVENTS IN REPORT PERIOD

December 16, 1971 - Liaison meeting with representatives of OSHD, WSHD, FHWA and Coast Guard.

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DEC 29 1971
BRIDGE DIVISION

Copy to FHA 12/29/71

ANTICIPATED FOR NEXT REPORT PERIOD

Drawings of final pier configurations will be submitted. Preparation of detailed design criteria will continue and requirements for Supplemental Foundation Investigation will be studied.

Very truly yours,

SVERDRUP & PARCEL AND ASSOCIATES, Inc.

R. D. Bane

R. D. Bane, P. E.
Assistant Vice President

Enclosure

cc: Robert L. Schroeder

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STATE HIGHWAY ENGINEER

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DEC 29 1971
BRIDGE DIVISION

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# OREGON STATE HIGHWAY DIVISION

INTER-DEPARTMENT CORRESPONDENCE

NOTED
A. E. JOHNSON

Salem, Oregon
November 10, 1971

SUBJECT: I-205 Columbia River Bridge
Bridge 9555

To:

Memo of Meeting

At the time Sverdrup & Parcel, our consultants on the subject bridge, were directed to proceed with the final design, a determination as to the pier shaft and pier top conformation had not been made. Our model maker having completed models of various shapes of piers and pier tops, representatives of the consultant were in Salem to view the same on November 2.

Mr. Ray Bane, Mr. Jack Allen of the Seattle office, and Mr. Fred Blanchard from St. Louis, viewed the models and were given directions by Mr. Johnson and myself to proceed with the pier shafts per previous instructions and with the pier top to be of the so-called "wine glass" construction.

Many pictures were taken by the consultants and they were also handed pictures taken by our photographer.

To my knowledge this completes all of the requirements necessary for the completion of the project.

Mr. Allen indicated that they were working on a proposal for test pile driving and loading and that the final span arrangements would be completed in the near future. Preliminary data on both the test pile program and span arrangement were left with us at this meeting; however, they will be finalized and submitted in the very near future. A test pile program will be put under contract at the earliest possible date after receipt of the above material.

Ivan D. Merchant
Bridge Engineer

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NOV 11 1971
OFFICE OF
STATE HIGHWAY ENGINEER

IDM:dh

cc A. E. Johnson
W. J. Hart

8905

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NOV 8 - 1971
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Consult.

November 5, 1971

Mr. David S. Berger, P.E.
Technical Sales Consultant
for Fabricated Structural Steel
Mitsubishi International Corporation
421 Southwest Sixth Avenue
Portland, Oregon 97204

Dear Dave:

Re: I-205 Columbia River Bridge
PD-42-205

I have your request to purchase or otherwise obtain a copy of the preliminary design report for the I-205 Columbia River bridge made by Sverdrup and Parcel and Associates, Inc.

We do not have enough copies of this report to distribute to individuals or companies; however, it is available for your inspection in my office at any time.

Very truly yours,

R. L. Porter
State Highway Engineer

By

A. E. Johnson
Assistant State Highway Engineer

cc R. L. Porter
Tom Edwards
I. D. Merchant
AEJ:ajw ms

CABLE ADDRESS
MITSUBISHI PORTLANDOREGON

HEAD OFFICE
277 PARK AVENUE
NEW YORK, N.Y. 10017

**MITSUBISHI INTERNATIONAL CORPORATION**
PORTLAND BRANCH

COMMONWEALTH BUILDING
421 S. W. 6TH AVENUE
PORTLAND, OREGON 97204
PHONE 227-3271

Edwards

Our Ref. No. PD-42-205
Date October 27, 1971

Mr. R.L. Porter
State Highway Engineer
Oregon Dept. of Transportation
Highway Building
Salem, Oregon 97310

RE: I-205 Columbia
River Bridge

Dear Mr. Porter:

Our engineers are most interested in the subject structure and have requested that we write your Department to determine if it is possible to purchase or otherwise obtain a copy of Sverdrup and Parcel and Associates, Inc., preliminary design report for their study.

As you know a bridge of similar design but somewhat longer main span is presently under construction in Japan. We would be happy to furnish you all available information on the Japanese structure that you may wish.

You kind cooperation will be greatly appreciated.

Very truly yours,

David S. Berger, P.E.
Technical Sales Consultant
For Fabricated Structural Steel

DSB/dgw
cc:
Tokyo Ky-H (Mr. Mita)
MIC - NYC (Mr. Hotta)

NOTED
TOM EDWARDS
AET

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OCT 28 1971
OFFICE OF
STATE HIGHWAY ENGINEER

8905

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OCT 1[illegible] 1971

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Consult

October 11, 1971

Sverdrup & Parcel & Associates Inc.
P.O. Box 369
Bellevue, Washington 98004

Attention: R. D. Bane, P.E.
Assistant Vice President

Gentlemen:

Re: I-205 Crossing of Columbia River
Engineering Agreement Dated 9/30/70

This is to confirm our telegram of September 27, 1971, granting you authority to proceed with final phase of design.

The States of Oregon and Washington and the Federal Highway Administration have mutually agreed on the configuration and type for the structure. Your final design shall be predicated on the following:

Superstructure: Per Figure 1 (b) of the Supplemental Studies to Preliminary Design Report, dated August 12, 1971 - with a 7' 6" cantilever deck overhang.

Substructure: Pier design shall be per Scheme D - Plate 3 of the supplemental report except the geometry of the pier top, which is under study by Oregon State Highway Division. We will advise you of our findings as soon as the study is completed.

As soon as practicable after we advise you of our findings on the pier top, we would appreciate a plan of the final layout of the piers and span lengths and your specifications for a pile test contract.

We have your final bill for the preliminary study. It is being forwarded to our Accounting Section for payment.

Very truly yours,

R. L. Porter
State Highway Engineer

By

Tom Edwards
Deputy State Highway Engineer

CAG:ag kw
cc: George H. Andrews, Director
Washington Department of Highways

R. E. Simpson, Division Engineer
Federal Highway Administration

bc R. L. Porter
A. E. Johnson
I. D. Merchant
R. L. Schroeder

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SEP 28 1971

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R/W
E.P.F
Col RXing

Consultants

**DOMESTIC SERVICE**
Check the class of service desired; otherwise this message will be sent as a fast telegram

|  |  |
|---|---|
| TELEGRAM | XX |
| DAY LETTER |  |
| NIGHT LETTER |  |

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# WESTERN UNION
## TELEGRAM

W. P. MARSHALL, PRESIDENT

1213 (7-58)

**INTERNATIONAL SERVICE**
Check the class of service desired; otherwise the message will be sent at the full rate

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|---|---|
| FULL RATE |  |
| LETTER TELEGRAM |  |
| SHORE-SHIP |  |

| NO. WDS.-CL. OF SVC. | PD. OR COLL. | CASH NO. | CHARGE TO THE ACCOUNT OF | TIME FILED |
|---|---|---|---|---|
|  |  |  | Oregon State Highway Division |  |

*Send the following message, subject to the terms on back hereof, which are hereby agreed to*

Sept. 27 19 71

To Sverdrup & Parcel
Street and No. 505 - 106th Avenue, N. E.
Care of or Apt. No. Destination Bellevue, Washington

Authority hereby granted to proceed with final phase of design on your contract I-205 Bridge. Letter follows.

NOTED
F. B. KLABOE

Tom Edwards, Deputy State Highway Engineer
Salem, Oregon
*Sender's name and address (For reference)*

378-6516
*Sender's telephone number*

8105
Consult.

STATE OF WASHINGTON
DANIEL J. EVANS, GOVERNOR

COMMISSIONERS
GEORGE D. ZAHN, CHAIRMAN
METHOW
ROBERT L. MIKALSON
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WALLA WALLA
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SEATTLE

LORENZ GOETZ, SECRETARY
OLYMPIA

1889

WASHINGTON
STATE HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS
G. H. ANDREWS, DIRECTOR
HIGHWAY ADMINISTRATION BUILDING
OLYMPIA

DISTRICT OFFICES
NO. 1 SEATTLE 98108
6431 SO. CORSON AVE.
NO. 2 WENATCHEE 98801
P. O. BOX 98
NO. 3 OLYMPIA 98501
P. O. BOX 327
NO. 4 VANCOUVER 98663
4200 MAIN STREET
NO. 5 YAKIMA 98901
P. O. BOX 52
NO. 6 SPOKANE 99205
N. 2714 MAYFAIR ST.
NO. 7 BELLEVUE 98004
10500 N.E. 4TH ST.

August 30, 1971

Mr. A. E. Johnson
Assistant State Highway Engineer
Oregon State Highway Division
Highway Building
Salem, Oregon 97310

Re: I-205, Columbia River Bridge

Dear Mr. Johnson:

In response to your transmittal of August 17, 1971, a review has been made of the Supplemental Studies to the Preliminary Design Report for the I-205 Columbia River Bridge by the Consulting Firm of Sverdrup and Parcel.

In reviewing these studies we note that Figure 1(b) showing a constant slope for all exterior webs is a much more satisfactory solution than the warped surface which would result from the recommended plan in the Preliminary Design Report. Therefore, we concur in your selection of this configuration of superstructure for this bridge.

With reference to the pier configuration we, also, concur with your selection of Scheme D as shown on Plate 3 of the Supplemental Studies. These pier configurations will provide structural adequacy and allow for the most economical construction of the proposed superstructure configuration.

We note that special studies have been made and additional studies will be made with regard to proper riprap protection for the river piers.

The selection of the type of structure as indicated in your letter of August 17, 1971 fulfills all of the recommendations which we made in our letter of May 12, 1971.

Very truly yours,

W. M. FOSTER, P.E.
Assistant Director
for Highway Development

cy to Edwards,
9-8-71

RECEIVED
SEP 8 1971
OFFICE OF
STATE HIGHWAY ENGINEER

WMF:

8905

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AUG 30 1971

FOR FILING

Consult

August 27, 1971

Sverdrup & Parcel & Associates, Inc.
Post Office Box 369
Bellevue, WA 98004

Attention Mr. Jack Allen

Gentlemen:

Re: I-205 Columbia River Bridge
Marine Drive Location

At one of our recent meetings you requested data on the location of Marine Drive which will determine the south end of the proposed structure.

Enclosed are two copies of a sketch received from our Metropolitan Office indicating the above information, together with the statement "There is no official plan for the relocation of Marine Drive, only a small sketch provided by the Port of Portland. This crossing as shown should be acceptable to the County and the Port."

Also enclosed for your information are two copies of a letter-size sketch indicating clearances at the northerly edge of the glide path. This sketch should be checked for accuracy as it indicates a potential problem in the location of the light standards.

Please let us know if there is anything further we can do on this project.

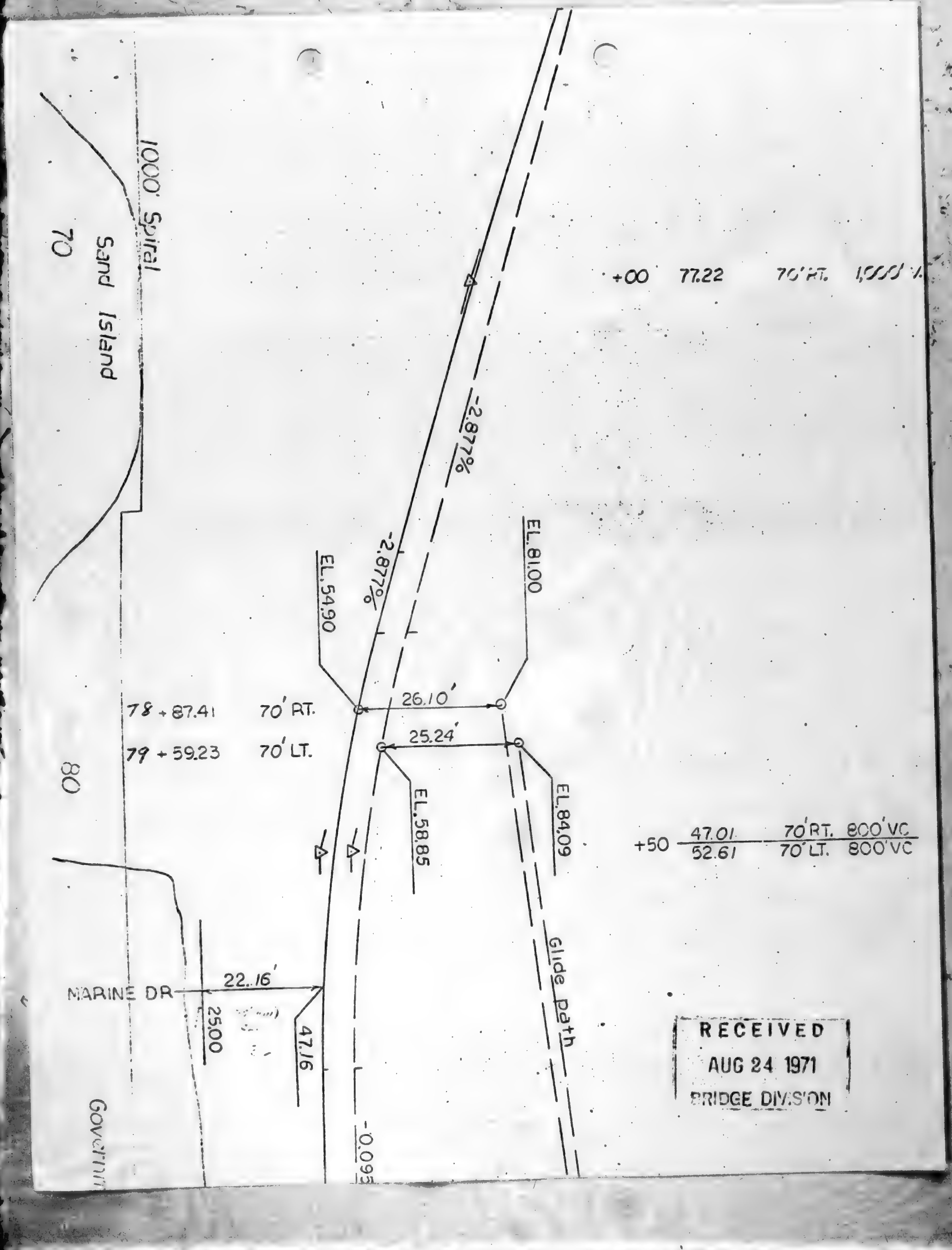
Very truly yours,

R. L. Porter
State Highway Engineer

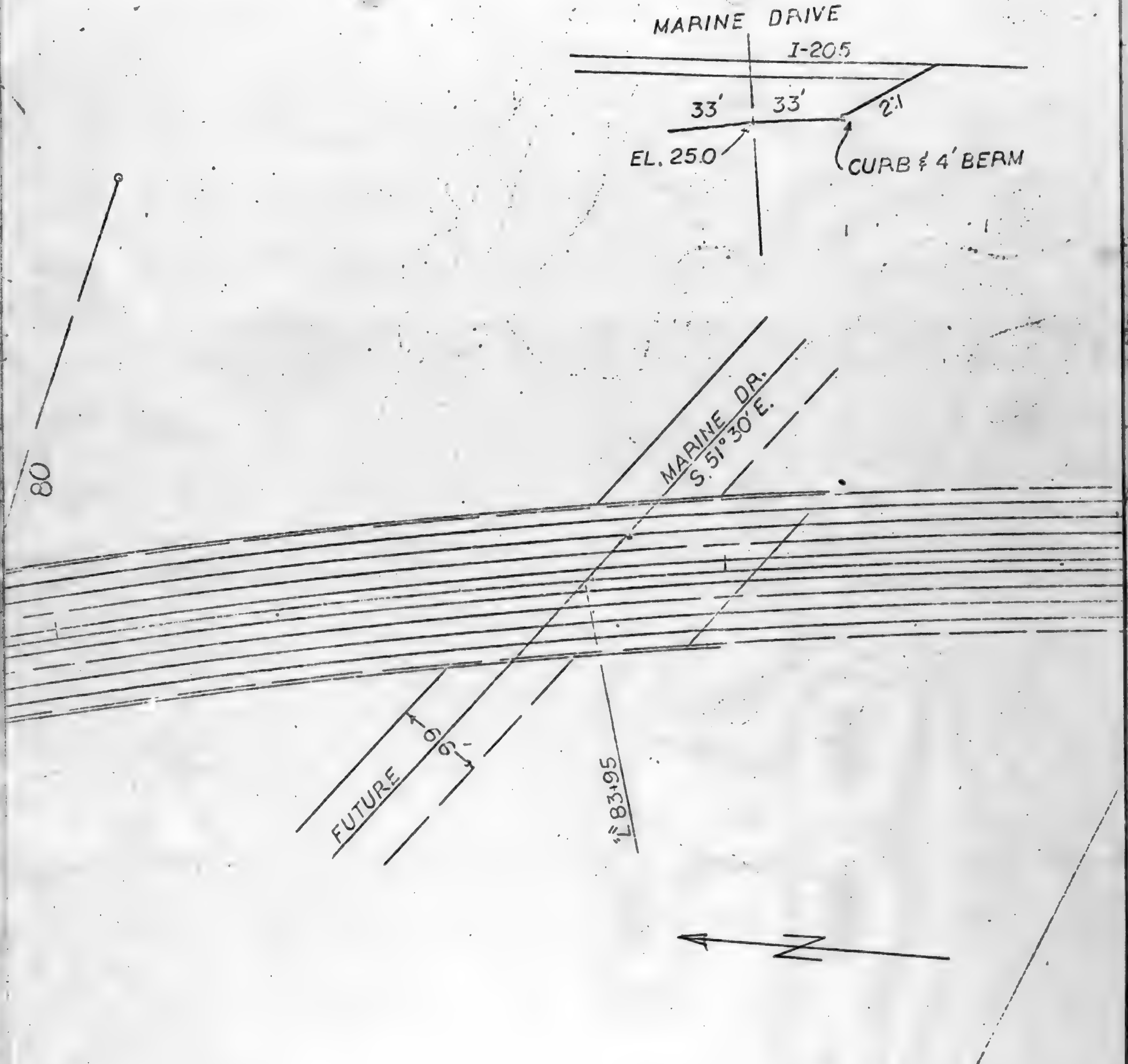
By

A. E. Johnson
Assistant State Highway Engineer

Encs.
cc R. L. Porter
Tom Edwards
I. D. Merchant
IDM:dh ms


1000' Spiral
Sand Island
70
+00 77.22 70' RT. 1,000' V
-2.877%
-2.877%
EL. 54.90
EL. 81.00
78 + 87.41 70' RT.
26.10'
79 + 59.23 70' LT.
25.24'
80
EL. 58.85
EL. 84.09
+50 47.01 70' RT. 800' VC
52.61 70' LT. 800' VC
Glide path
MARINE DR
22.16'
25.00
47.16
Governm
-0.093

RECEIVED
AUG 24 1971
BRIDGE DIVISION


MARINE DRIVE
I-205
33'
33'
2:1
EL. 25.0
CURB & 4' BERM
80
MARINE DR.
S. 51°30'E.
FUTURE
96'
℄ 83+95
N

8-105

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AUG 19 1971

FOR FILING

Consult

August 17, 1971

Mr. R. E. Simpson, Division Engineer
Federal Highway Administration
Post Office Box 300
Salem, Oregon 97308

Dear Sir:

Re: Columbia River Bridge
Oregon Project I-205

After receiving the preliminary design report from our consultant, Sverdrup & Parcel, additional studies were requested. (Please refer to letter of May 20, 1971.) These additional studies have been completed by the consultant and attached are four copies of their report "Supplemental Studies to Preliminary Design Report for Proposed Interstate Route I-205, Columbia River Bridge, dated August 12, 1971.

Your June 3, 1971, memorandum transmitted comments from your Washington office on the preliminary report. Reply will be made on a portion of these items as in the meantime several of the other items mentioned have been accomplished.

Mention was made that a more judicious use of high strength-low alloy steel should improve the economy of the structural steel design. You are referred to pages 22 and 23 of the report wherein the consultant indicates that the use of high strength steels would require a relaxation of the live load deflection criteria. The State is not in favor of lowering design standards which have proven to be marginal. Also, it should be mentioned that a greater use of high strength steel in box girder construction requires more stiffening of plates and the added cost of additional fabrication and stiffening materials could offset any decrease in steel weights.

Also, a comment was made that in Concept A the longitudinal girders are framed into a transverse girder at the piers rather than being supported directly on the piers.

The comment was made by our consultant that the cross girders at the piers for Concept A were developed to improve esthetics inasmuch as one of the basic comments at a previous meeting was to the effect that the piers were too massive appearing. It should be added that inasmuch as the consensus is for a concrete superstructure the comments on structural steel are redundant.

The consultant was asked to review prestressed concrete prices. The following statement was received from the consultant in justification of the prices used:

"The development of these unit prices was based on input from several sources. One source, Santa Fe - Pomeroy, Inc., used a precast segmental approach to study the costs; anouther source, Dykerhoff & Widmann, Inc., considered cast-in-place segmental construction appropriate. Although the unit costs from both of the sources were in close agreement, they were adjusted upward by our staff to provide what was considered a realistic amount.

"Recent comparisons with unit prices bid in Canada and California indicate the report prices may be a little high if bids were to be received in the near future."

Since receiving the supplemental report, the State has studied the proposed pier configuration. It is our recommendation that the pier study Scheme D on Plate 3 of this report be adopted. However, the State desires to prepare some models of the pier top and a final determination of the exact pier top configuration should be held in abeyance. The consultant has indicated that minor revisions to the profile of the pier top will in no way delay his work on the project.

Also, an economic study will be made during the design period by the consultant for each pier to determine if a single footing for the combined pier shafts should be used or whether individual footings are more economical.

Referring to Figure 1 of the August 12 supplemental study, the State has concluded that the section indicated in

Figure 1(b) with a seven-foot six-inch overhang is preferable with a constant slope on the girder sides of four to one. The seven-foot six-inch overhang is preferred for reasons of structural stiffness and ease of construction to provide good lines on the completed structure. This is in line with the State of Washington's original desires as to bridge cross section.

Subject to a minor revision in the pier top configuration, the State believes the geometrics of the structure should be as outlined and requests approval to proceed with the final design stage of this project.

Very truly yours,

R. L. Porter
State Highway Engineer

By

A. E. Johnson
Assistant State Highway Engineer

Attachments

cc R. L. Porter
Tom Edwards
I. D. Merchant

IDM:dh ms

8905

RECEIVED
AUG 19 1971

FOR FILING

Consult

August 17, 1971

Washington Department of Highways
Highway Administration Building
Olympia, WA 98501

Attention Mr. W. H. Robertson
Bridge Engineer

Gentlemen:

Re: Oregon Project I-205
Columbia River Bridge

On April 6, 1971, transmittal was made to you of the preliminary report for the I-205 Columbia River Bridge prepared by the consulting firm of Sverdrup and Parcel. On that date the same material was also transmitted to the Federal Highway Administration, and the State recommended acceptance of a concrete superstructure and indicated that the consultant would be requested to do further work on the pier shafts and pier orientation.

On August 13, 1971, the State received a report entitled "Supplemental Studies to Preliminary Design Report for Proposed Interstate Route I-205, Columbia River Bridge", dated August 12, 1971. I am enclosing two copies of this report for your study.

After receiving the supplemental report, a meeting was held in this office by personnel from the Federal Highway Administration, Sverdrup and Parcel, and the State of Oregon. It was determined that our recommendation on pier shaft study would be for Scheme D on Plate 3 of this report and that the preferred superstructure cross section would be as indicated in Figure 1(b). We will prepare model studies to make a final determination of the exact pier top configuration.

At the earliest possible time will you please look over the enclosed report and advise us of your concurrence in the report and the above-mentioned selections for pier type, pier placement, and superstructure cross section, as it is our desire to have the consultant proceed with the second phase of the contract as soon as possible.

Very truly yours,

R. L. Porter
State Highway Engineer

By

A. E. Johnson
Assistant State Highway Engineer

Enclosures

cc R. L. Porter
Tom Edwards
I. D. Merchant

IDM:dh me

8905
Consult

7-71

Johnson

# SUPPLEMENTAL STUDIES
# TO
# PRELIMINARY DESIGN REPORT
# FOR
# PROPOSED INTERSTATE ROUTE I-205
# COLUMBIA RIVER BRIDGE

Prepared for

OREGON STATE HIGHWAY COMMISSION

July 1971

by

SVERDRUP & PARCEL AND ASSOCIATES, Inc.
Consulting Engineers

Bellevue, Washington - St. Louis, Missouri

RECEIVED
JUL 19 1971
BRIDGE DIVISION

## INTRODUCTION

During a meeting in Salem, Oregon, on June 15, 1971, to review the April 1971 Preliminary Design Report for the proposed I-205 Columbia River Bridge, the Oregon State Highway Division requested additional studies of alternate superstructure cross sections and pier orientations, in order to precipitate final acceptable configurations for these elements of the Columbia River Bridge.

Several alternate superstructure cross sections are presented herein and a number of pier shaft shapes, orientations and locations are shown and reviewed. A discussion of local scour and the need for rip rap blanket scour protection is included as part of the pier studies, in order to assist in arriving at acceptable criteria in that regard.

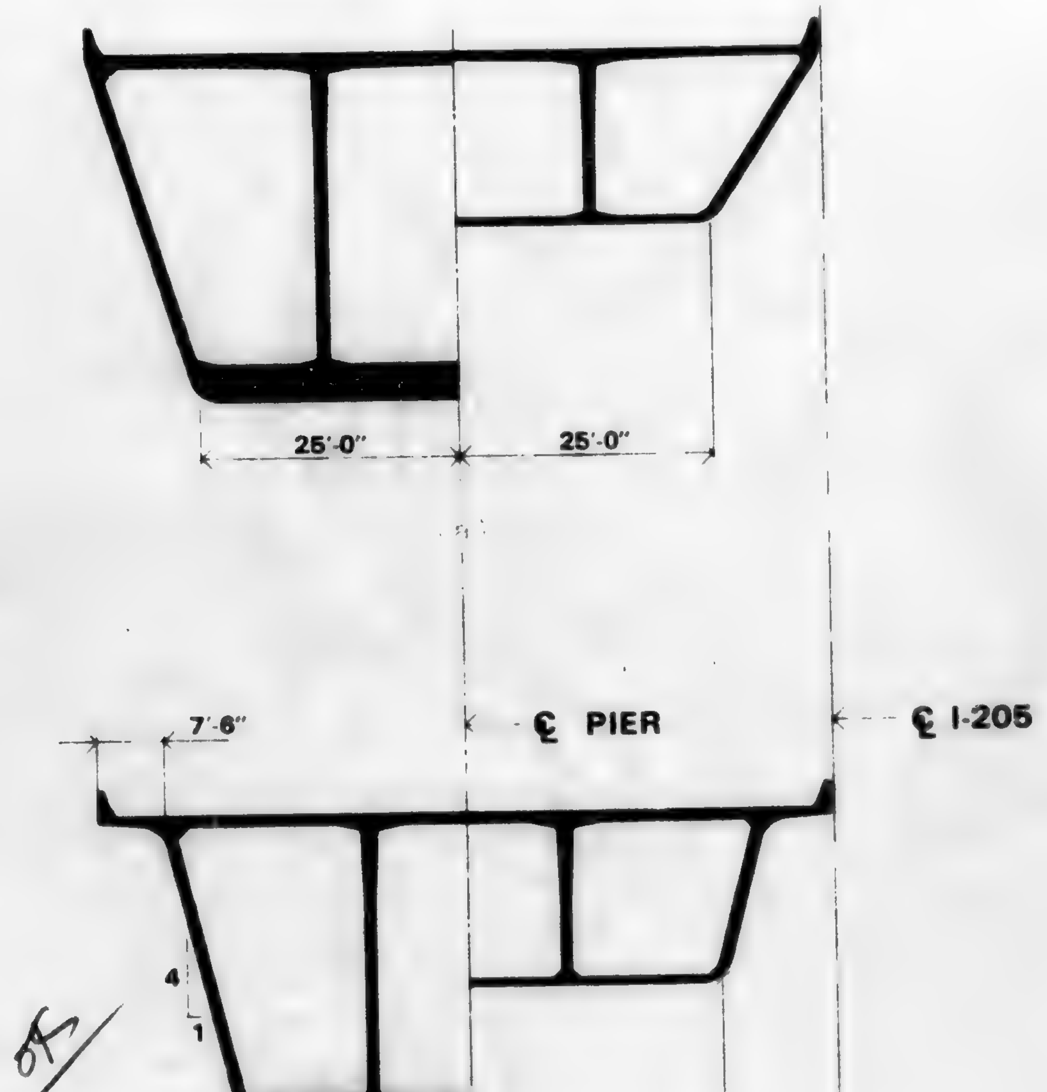
## SUPERSTRUCTURE

The Recommended Concept for a prestressed concrete superstructure cross section (see Figures 16 and 22, Preliminary Design Report) is a OK. three-cell box with a variable slope of the flush exterior webs. This section was selected because of its superior torsional rigidity, retention of a constant-width bottom compression flange and superior aesthetic quality.

The variable slope of the exterior web actually occurs only in the main channel spans and transitional spans, which represents a small proportion of the total length of bridge; in all other spans, a constant side slope is maintained. The variable slope is not considered objectionable from either a construction or cost standpoint.

Modifications to this cross section can be developed which, although compromising the selected values, would be structurally satisfactory. Several alternate cross sections, providing cantilever slab projections and constant one on four sloping exterior webs, are shown on Figure 1. Also included in Figure 1 is the recommended section (a) from the report.

Once it is established that a slope of the exterior web is both desirable and acceptable and that a cantilever projection of the top slab is needed for a shadow effect, the cantilever projection should be set to that dimension which would optimize economy and appearance. It is felt that a projection of from six to ten feet would accomplish this.


25'-0"
25'-0"
7'-6"
℄ PIER
℄ I-205
4
1
20'-0"
24'-3"
9'-6"
4
1
17'-9"
22'-0"

SUPERSTRUCTURE
FIGURE 1

Figure 1-b provides for a three-cell box with a 7'-6"± cantilever slab projection. The vertical webs have been positioned to minimize transverse bending in these elements, and although the bottom flange is the least width at the point of maximum stress, its thickness is not excessive.

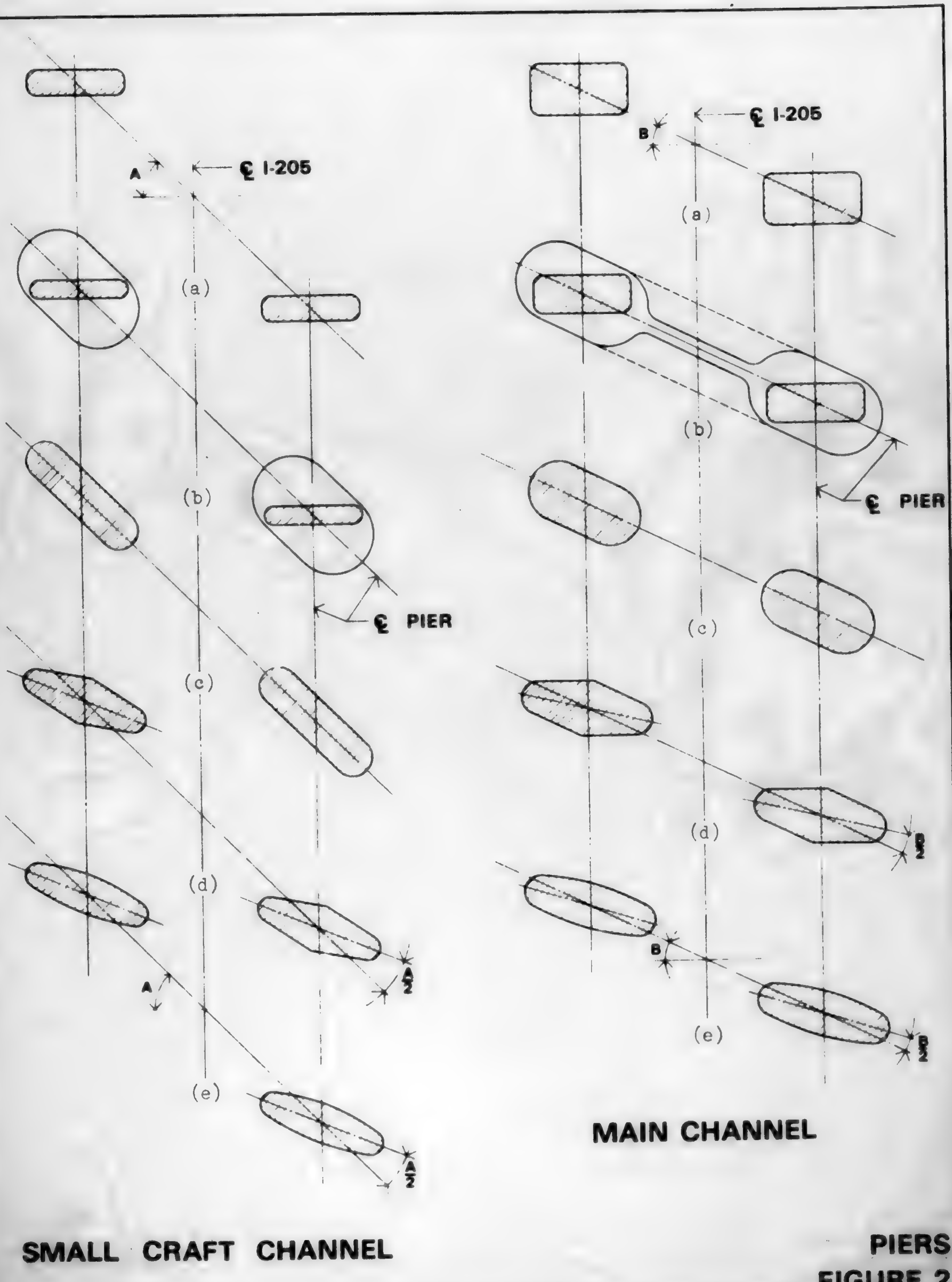
Figure 1-c indicates an alternate cross section, consisting of two cells and a 9'-6"± cantilever slab projection, proportioned to minimize transverse bending in the structural components. Although this section weighs nearly the same as the section in Figure 1-b, its construction cost would be less since there would be less form work.

All three cross sections require that the top slab be post-tensioned transversely. The addition of one or two vertical webs would make it possible to use mild steel reinforcement in the transverse direction of the top slab, but this would not result in an economical structure.

A comparison of the three cross sections shown in Figure 1, from the standpoint of economy, structural efficiency and appearance, indicates that the section in 1-b rates average for all considerations whereas the sections in 1-a and 1-c rate above or below average. Discounting the Recommended Concept shown in 1-a, the cross section in Figure 1-b is considered superior to 1-c.

## SUBSTRUCTURE

The pier orientation and location for the Recommended Concept approximates the layout indicated on the U. S. Coast Guard permit. Pier shafts are placed normal to the superstructure and are


℄ I-205
A
(a)
(b)
(c)
(d)
(e)
℄ PIER
A/2
SMALL CRAFT CHANNEL
℄ I-205
B
(a)
(b)
(c)
(d)
(e)
℄ PIER
B/2
MAIN CHANNEL

PIERS
FIGURE 2

staggered, one roadway to the other, in the direction of the stream flow. This is the most structurally efficient method of supporting the bridge and does reduce blockage of the river to a degree. However, pier shafts skewed to the stream flow do create additional turbulence at their bases.

In order to reduce river blockage and minimize turbulence around the shafts, pier bases or shafts with rounded or elliptical noses could be provided in the direction of flow. A few methods of incorporating this principle into the structure are shown in Figure 2 and on the plates bound at the back of this report.

One very important aspect which must be considered when developing configurations of this type is that heavily loaded shafts in bending and direct stress are more adversely affected by a skewed pier arrangement than are the stiffer bending members of the superstructure. It would, therefore, be structurally unsound to attempt to achieve as much continuity between substructure and superstructure for the skewed piers as would be possible with piers placed normal to the superstructure. Thus, a greater use of reinforced concrete hinges or sliding bearings would be indicated for the joints at the top of skewed pier shafts.

The schemes shown in Figure 2 represent a few basic possibilities which might be adopted for the Columbia River Bridge and are as follows:

(a) This plan represents the pier orientation and location of the Recommended Concept.

(b) This plan retains the orientation and location of the shafts of Scheme (a), but incorporates a base positioned parallel to the stream flow, with a rounded nose form. The base can be made up of two individual ovals, two ovals joined by a thin web wall or one large oval supporting both columns.

The top of the enlarged base should either be set well below low water (elevation -5±) or should extend well above high water (elevation + 40±), in order not to create hazards to small craft operating in the area.

If the top of base is set at about elevation 40±, the shaft size can be reduced somewhat from that shown in Scheme (a), since the unsupported height of the shaft is reduced. This would enable positioning a base width that is equal to or a little less than the projected width of the pier shaft in Scheme (a).

Although this scheme compromises the aesthetic appearance of the structure, it does permit retention of the structurally sound normal orientation of the pier shafts. It is noted that this type of treatment was adopted by the designers of the Yamatogawa Elevated Motorway in Osaka, Japan.

(c) This plan provides for a column shaft skewed in the direction of the stream flow with a rounded nose form. Blockage of the river is less for this scheme than for Schemes (a) or (b) even though the column size has been increased for stress purposes.

(d) & (e) These shapes represent a plan to compromise skew angle with river blockage. A trapezoid, with rounded nose form, as in (d), or an elliptical shape as shown in (e), are set at 1/2 of the skew angle to the direction of flow. These orientations improve the structural efficiency of the pier, while averaging turbulent effects and stream blockage, and thus have strong possibilities.

The local scour depth has been estimated for each of these schemes, utilizing Bulletin No. 4 of the Iowa Highway Research Board, and the results are shown in the following tabulation. The depth of water is based on an extreme elevation of +28.0±.

| Scheme | Flow Depth (d) | Pier Width (b) | Pier Length (l) | Nose Form Reduction (K) | Skew Angle (a) | (d÷b) | (l÷b) | Constants from Charts F | Constants from Charts Kal | Depth of Scour* (ds) |
|---|---|---|---|---|---|---|---|---|---|---|
| (Main Channel Piers) | | | | | | | | | | |
| a | 65 | 16 | 30 | -- | 26° | 4.1 | 1.9 | 2.3 | 1.3 | 48 |
| b | 65 | 24 | -- | .9 | -- | 2.7 | -- | 2.0 | -- | 43 |
| c | 65 | 18 | -- | .9 | -- | 3.6 | -- | 2.2 | -- | 36 |
| d,e | 65 | 16 | 40 | -- | 13° | 4.1 | 2.5 | 2.3 | 1.2 | 45 |
| (Secondary Channel Piers) | | | | | | | | | | |
| a | 45 | 8 | 30 | -- | 45° | 5.6 | 3.8 | 2.5 | 2.2 | 44 |
| b | 45 | 25 | -- | .9 | -- | 1.8 | -- | 1.8 | -- | 40 |
| c | 45 | 14 | -- | .9 | -- | 3.2 | -- | 2.2 | -- | 28 |
| d,e | 45 | 12 | 40 | -- | 22°-30' | 3.8 | 3.3 | 2.2 | 1.7 | 45 |

* Depth of Scour = (b)(F)(K) or (b)(F)(Kal), whichever is larger.

It can be seen that anticipated scour depths vary from about 25 to 50 feet and in addition, general scour would be expected. Preliminary studies indicate that the installation of a riprap blanket for scour protection would be more economical than setting the pier base at an elevation providing some freeboard to total scour. The size of rock can be estimated using the clear water scour theory expression:

$$\frac{to'}{tc} = \frac{V^2}{120\ d's^{1/3}\ D^{2/3}}$$

where: $\frac{to'}{tc}$ = Factor dependent on $\frac{d's}{b}$ & $\frac{d}{b}$

$d's$ = depth of allowable scour
$b$ = pier width
$d$ = depth of flow
$D$ = rock diameter

If allowable scour is limited to three feet, at the main piers where the water depth is estimated to be sixty-five feet, and a very conservative ten feet per second is selected for water velocity, the resulting estimate of rock size is:

$$D = \left[(4 \times 10 \times 10) \div (120 \times 65^{1/3})\right]^{3/2} = .75'$$

It is apparent that rock graded in size from about six inches to twelve inches, to prevent leaching, and placed over the extent of an anticipated scour hole would provide protection from scour at the bridge piers. In addition, footings and seal courses should be set below this riprap blanket in order to prevent their shapes from contributing to local scour.

A comparison of pertinent features of each of the above-noted substructure schemes, presented in descending order of acceptability, is as follows:

| | Structural Efficiency | Appearance | Construction Cost | Scour | Stream Blockage |
|---|---|---|---|---|---|
| Most Favorable | a | a | a | c | c |
| | b | e | c | b | d,e |
| | d,e | c,d | d,e | d,e | b |
| Least Favorable | c | b | b | a | a |

It can be seen that Schemes (a) or (c) are generally at one extreme or the other, while Schemes (b), (d), and (e) represent an average acceptability. Based on this comparison and discounting the Recommended Concept of Scheme (a), the Scheme (e) concept appears most favorable.

## MODELS

For the development of the various concepts presented in these supplemental studies, it was felt that some benefit might be gained from the study of visual models. Two such models were made of the main channel span and its piers. Photographs of these models, taken from identical vantage points, are included at the back of this report.

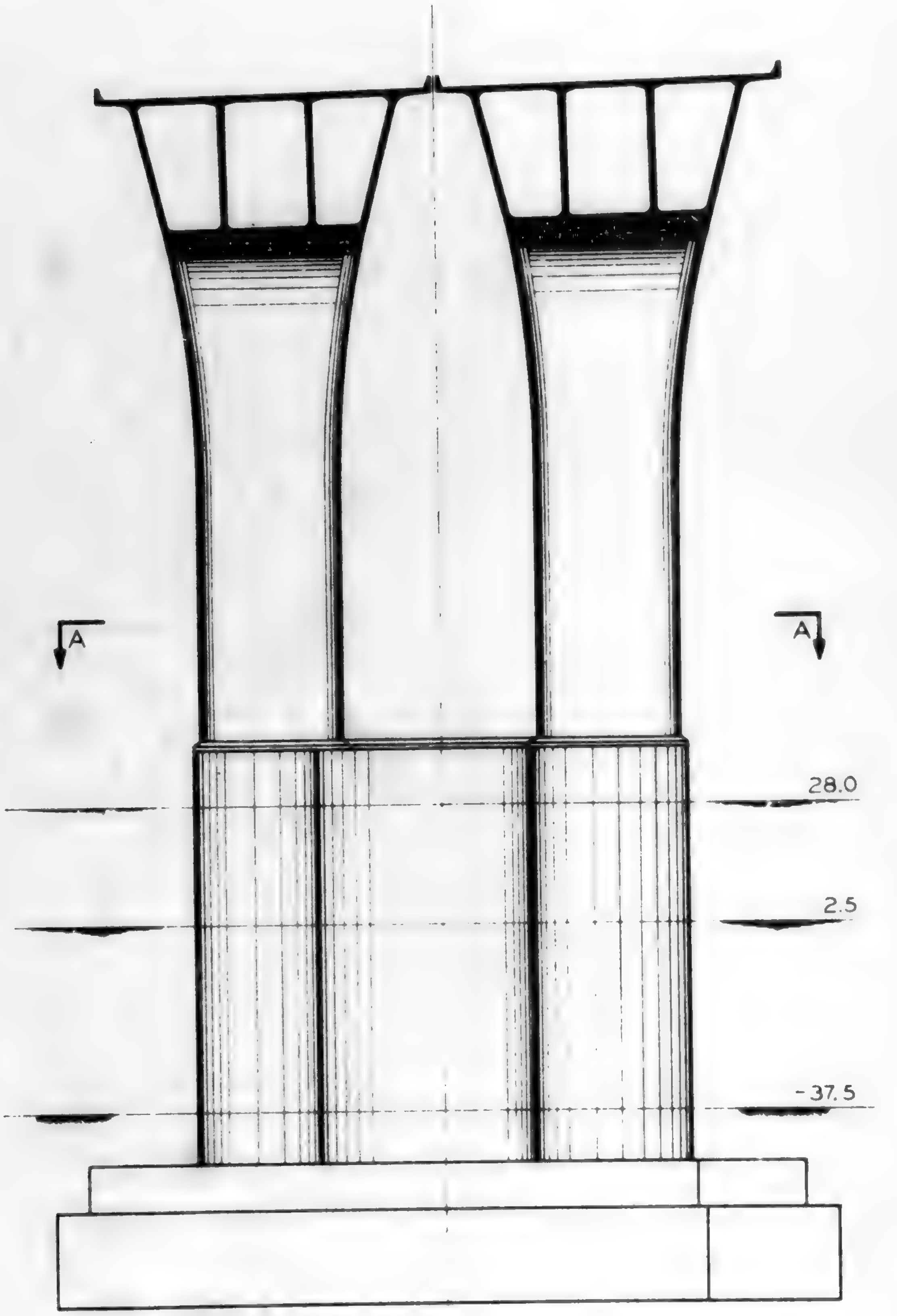
The photograph on the top of each page shows the superstructure and pier arrangement for the Recommended Concept, from the preliminary report, while the photograph on the bottom of each page indicates a combination of the superstructure cross section of Figure 1-b and the elliptical half-skewed piers of Figure 2-e in these supplemental studies.

## CONCLUSIONS

As a result of this study, the following conclusions can be made:

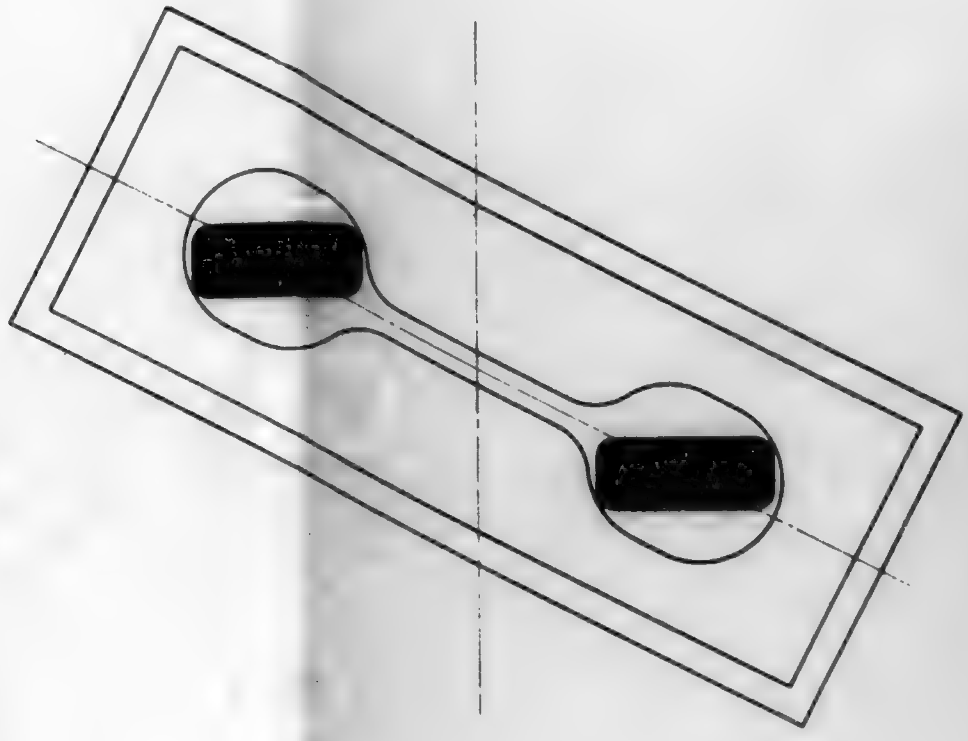
A superstructure cross section with a 1:4 slope of the exterior web and a cantilever projection of the slab is structurally sound and has an economic advantage over the recommended cross section. However, as is illustrated by the attached photographs, the aesthetic appearance is not as pleasing as the recommended section, since the light and shadow effects de-emphasize the depth of the superstructure and thereby accentuate the length of the unit which is already extensive. On this basis alone the adoption of a cantilevered slab would not be favored over the visually stronger element created by the recommended slope-sided cross section.

Fully skewed pier shafts will not restrict the river flow nor create as much turbulence as piers placed normal to the superstructure, even though the shaft sizes would become larger. However, this would result in this predominant element taking on a more massive appearance. More importantly, from a structural standpoint, fully skewed piers are not considered to be as satisfactory as piers positioned normal to the superstructure, since some of the continuity between substructure and superstructure would have to be sacrificed. Therefore, because of structural considerations, the originally recommended pier concept is deemed the superior choice. However, in the event a skewed requirement of the pier shafts is considered mandatory, a compromise of the skew angle of the shafts, such as in Scheme (e), would be suggested.

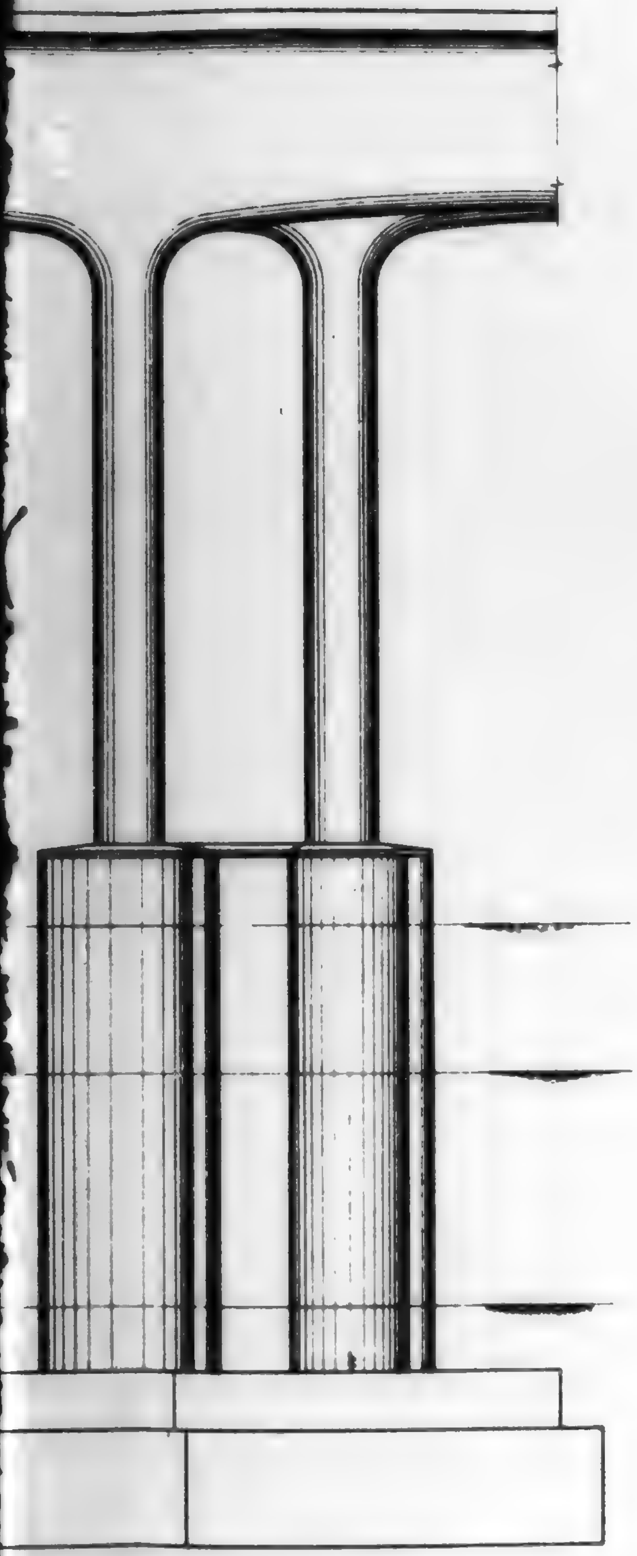

A
A
28.0
2.5
-37.5

SECTIONAL VIEW
(NORMAL TO SUPERSTRUCTURE)

SIDE

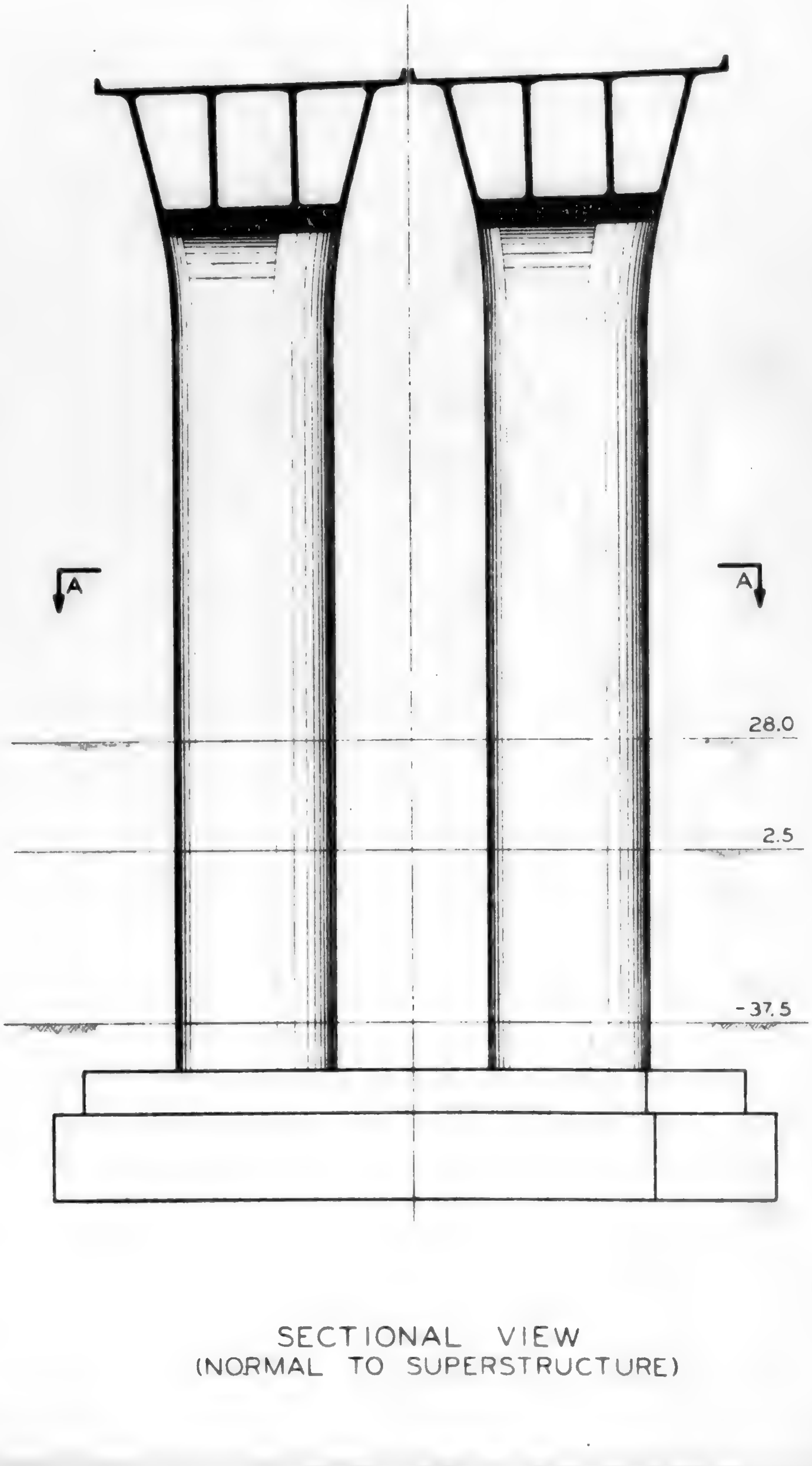


SECTION A-A



SIDE ELEVATION

COLUMBIA RIVER BRIDGE
PIER STUDY - SCHEME B
PLATE I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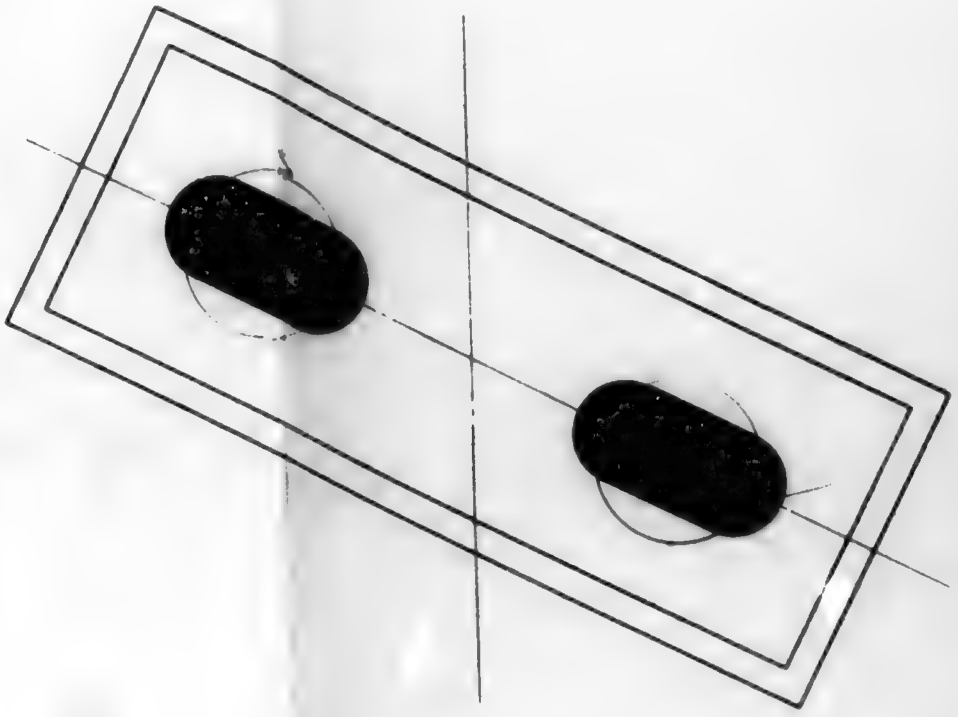
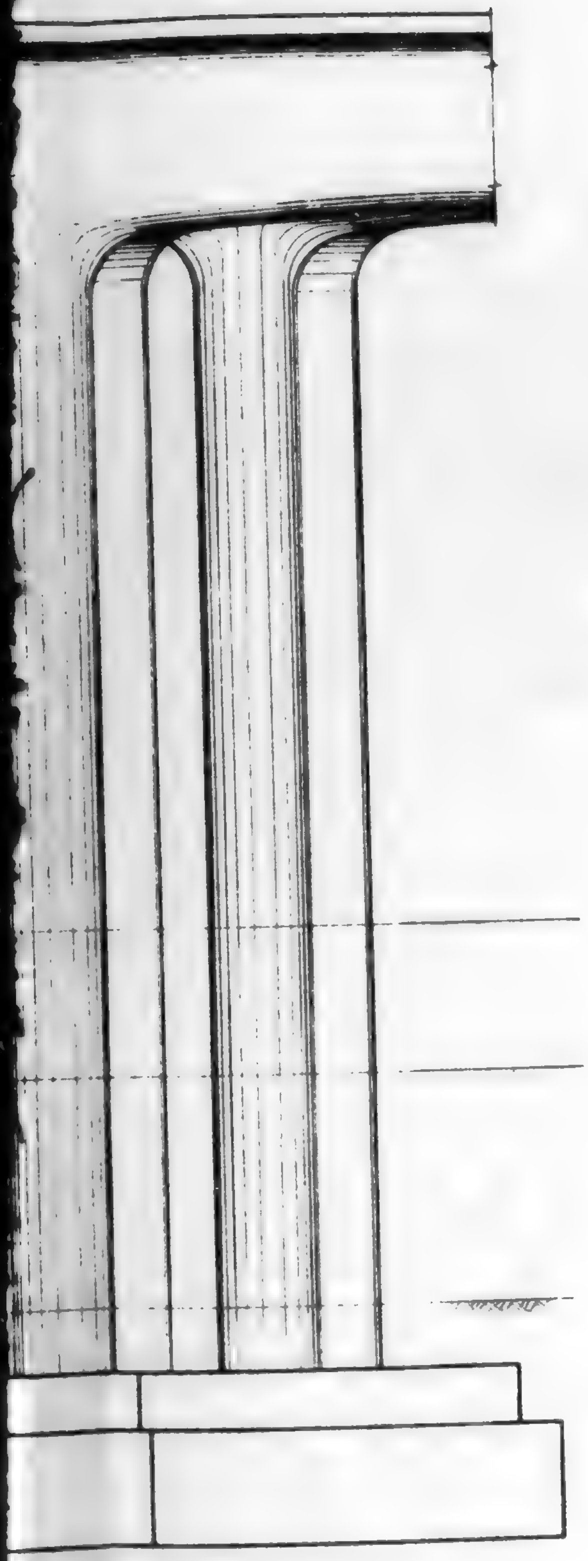
SECTIONAL VIEW
(NORMAL TO SUPERSTRUCTURE)

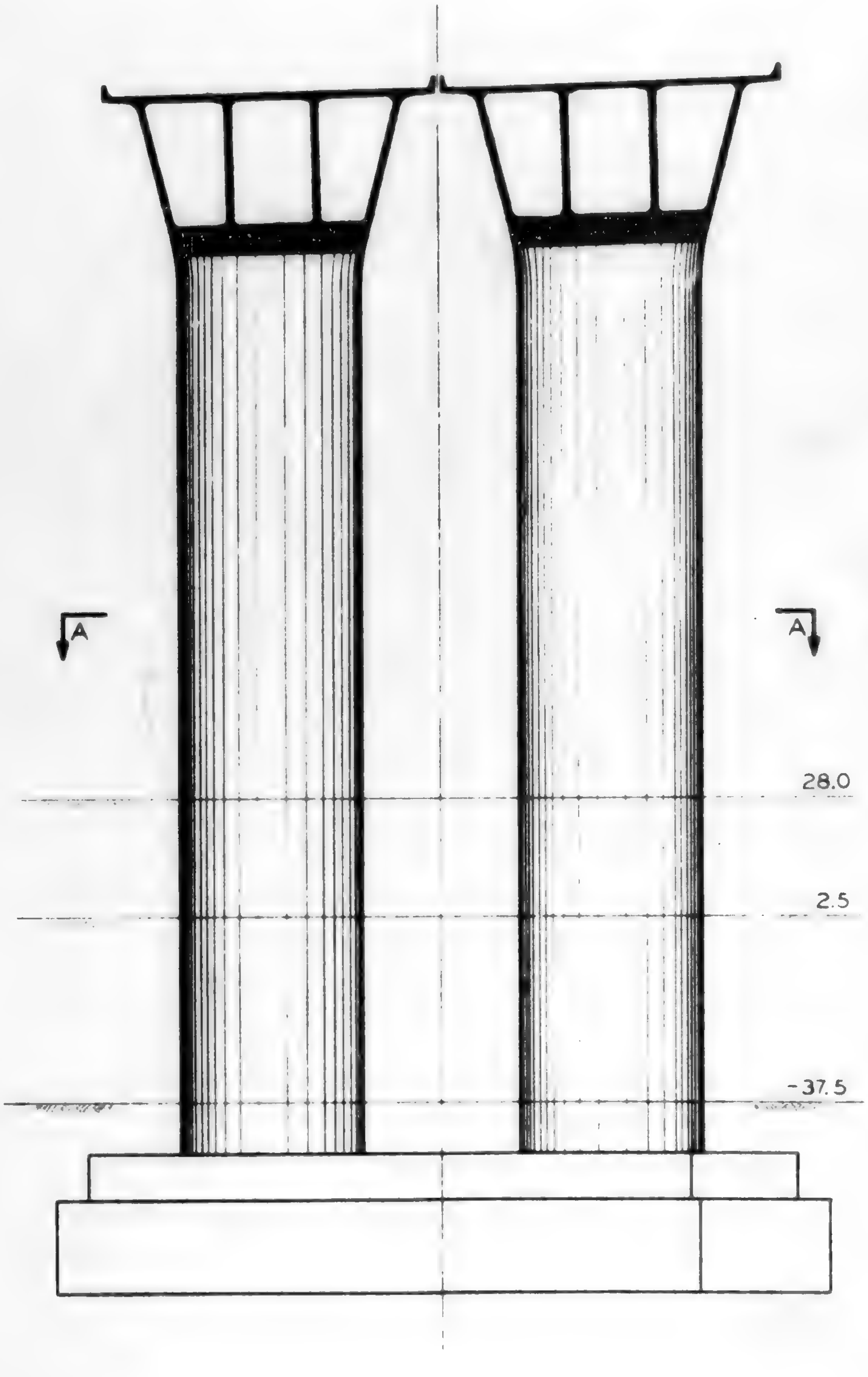


SECTION A-A



SIDE ELEVATION

COLUMBIA RIVER BRIDGE
PIER STUDY-SCHEME C
PLATE 2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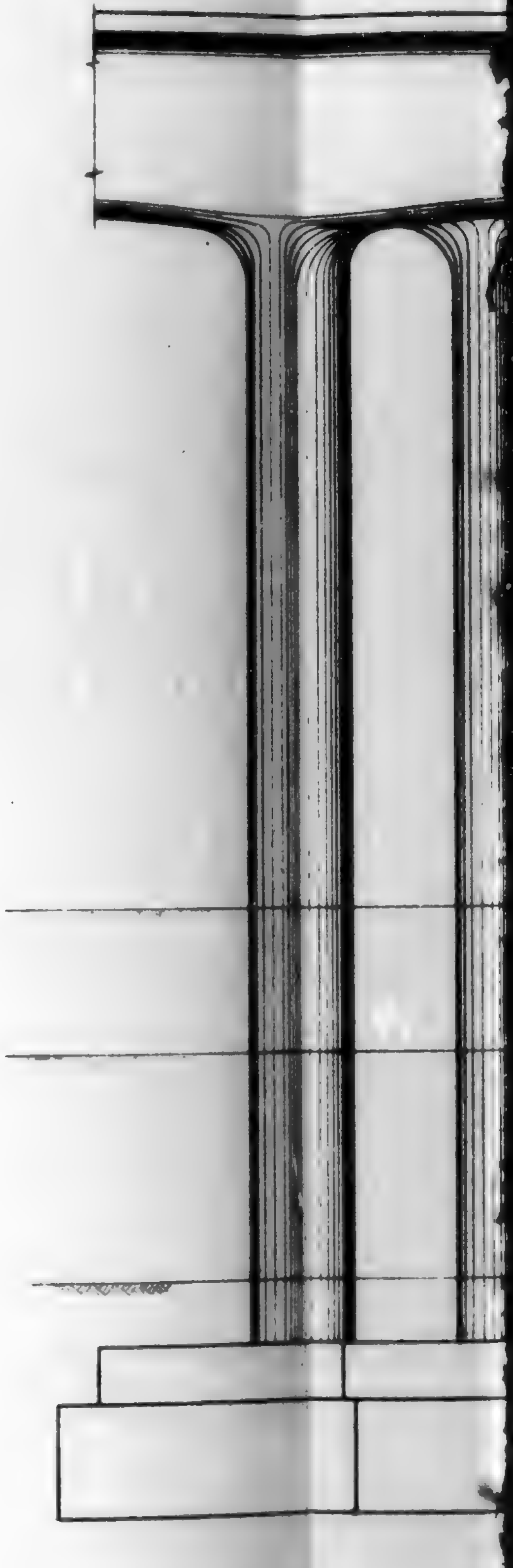
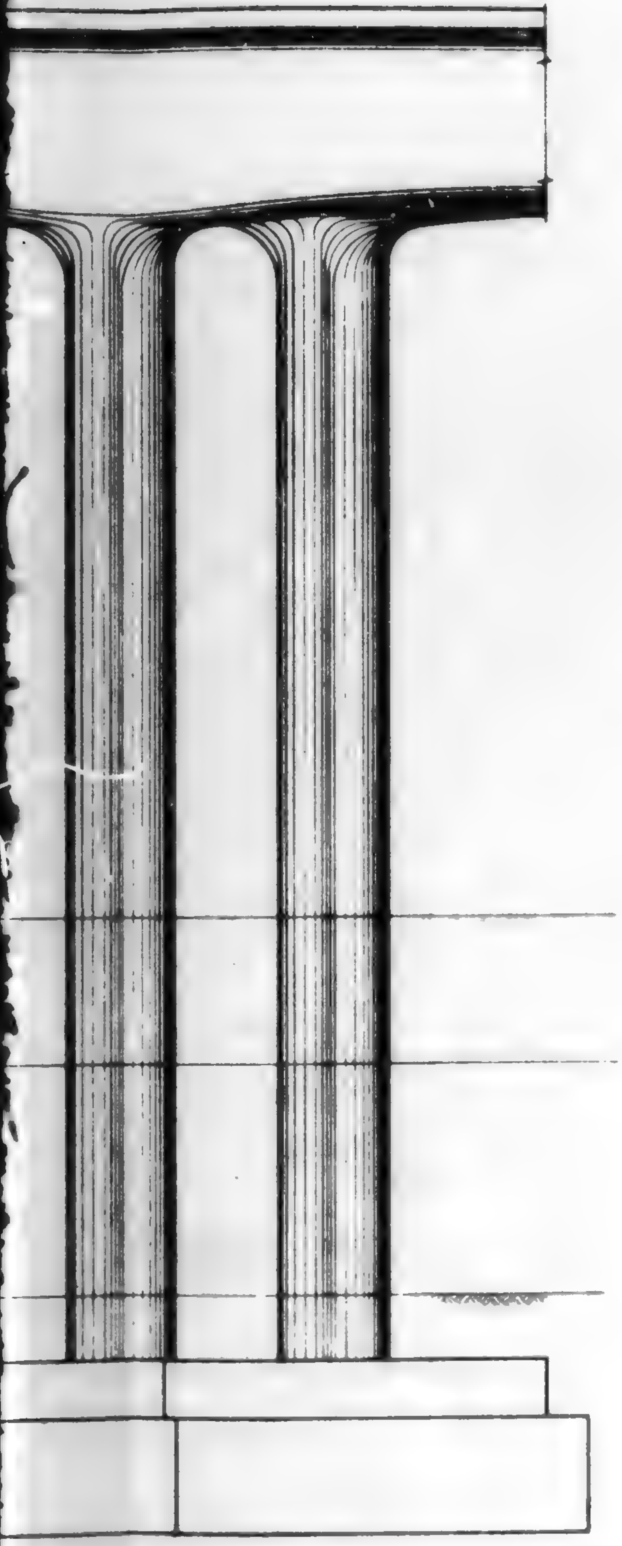
-37.5

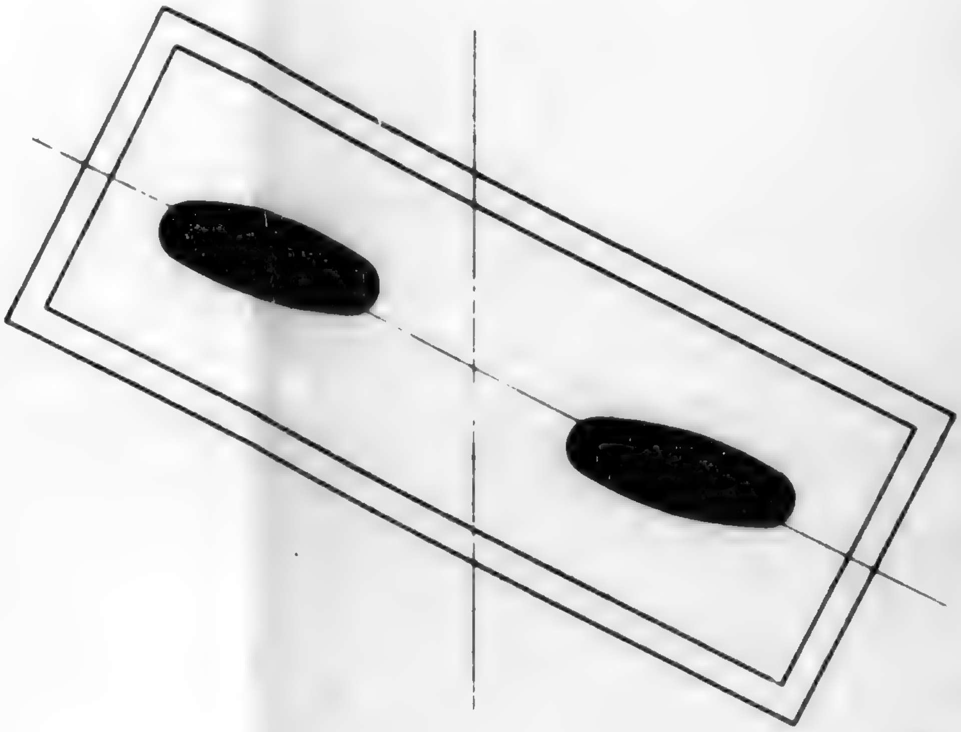
SECTIONAL VIEW
(NORMAL TO SUPERSTRUCTURE)



SIDE ELEVA

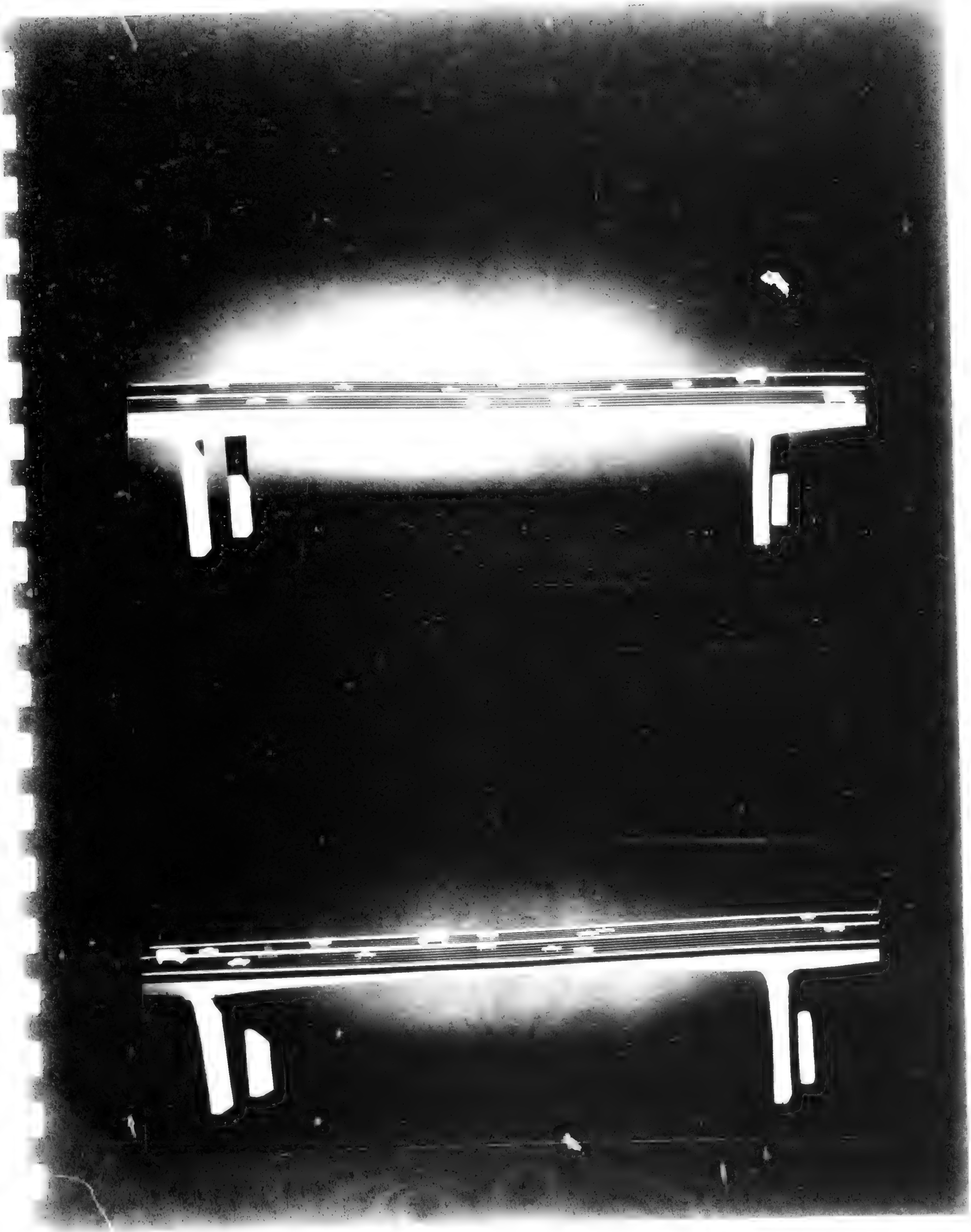


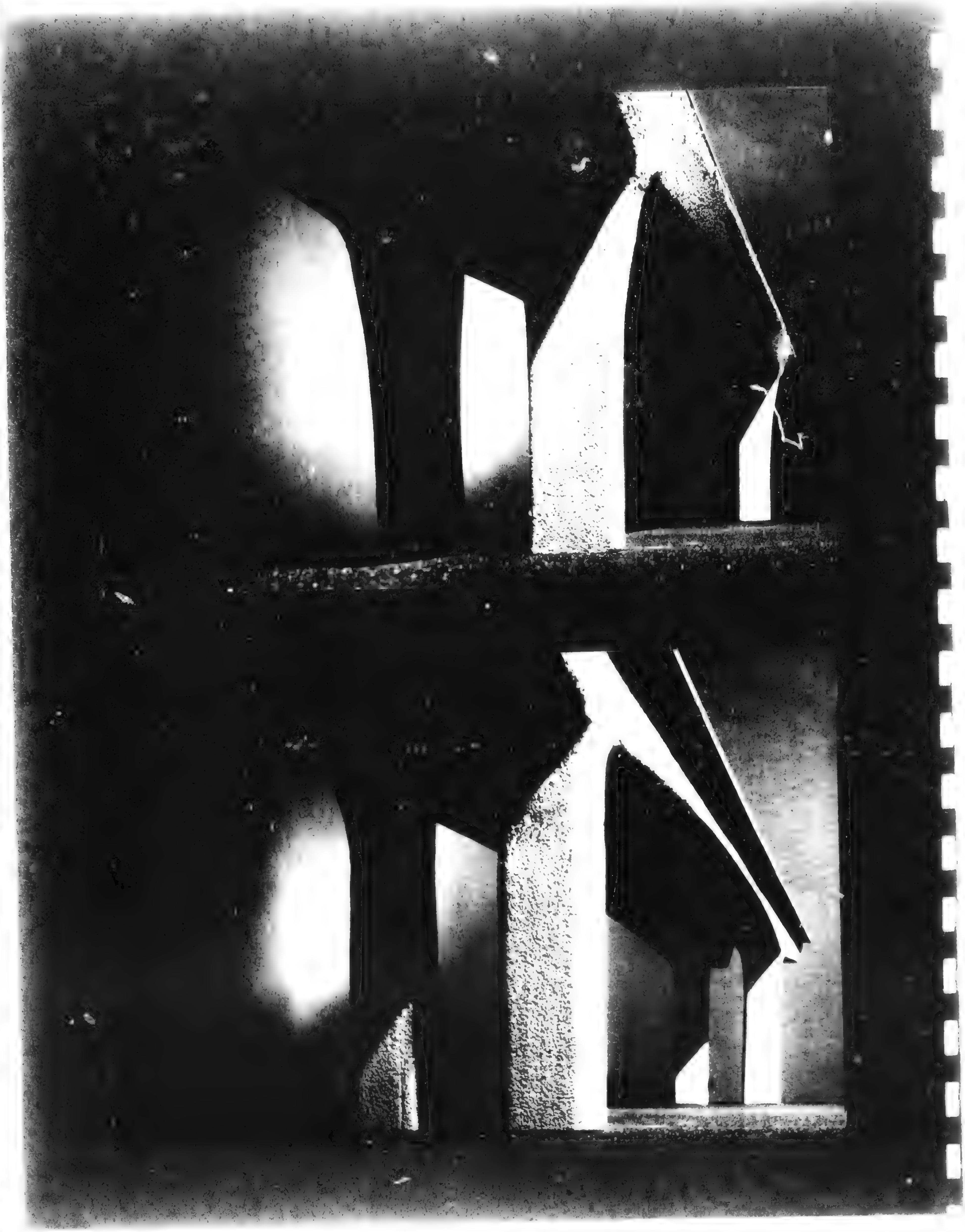
SIDE ELEVATION

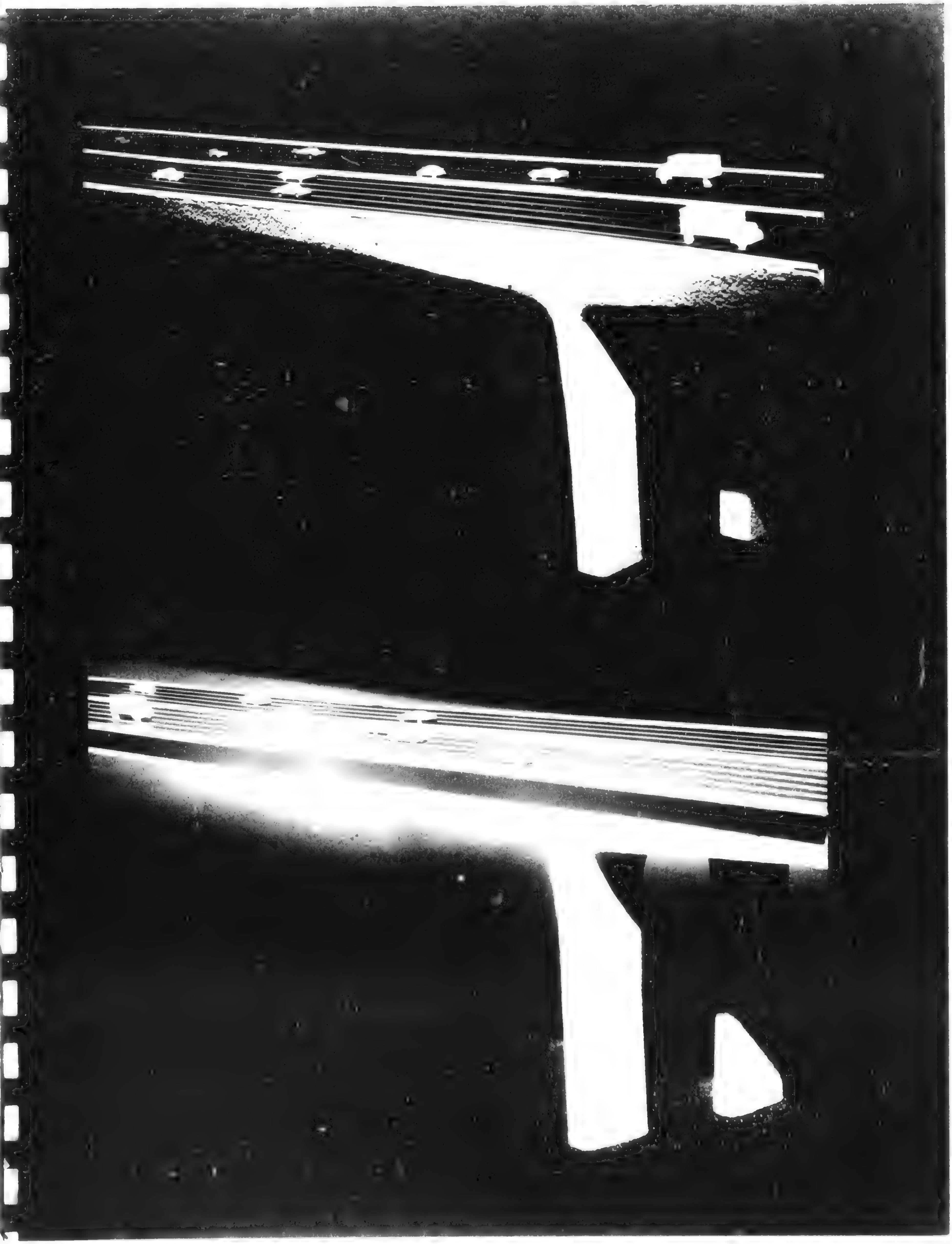


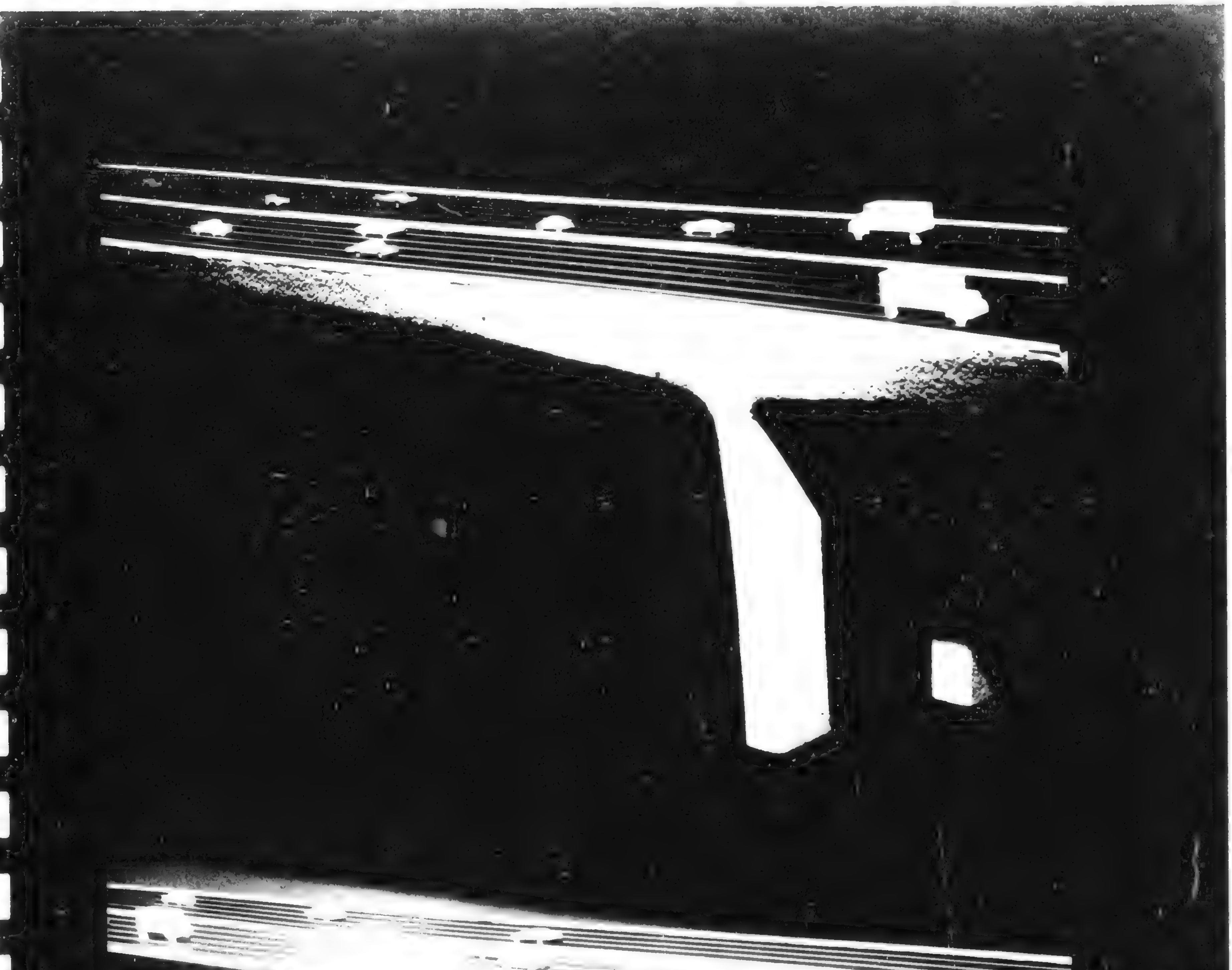
SECTION A-A

COLUMBIA RIVER BRIDGE
PIER STUDY-SCHEME E
PLATE 3









8905

Consult.

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1859

**OREGON STATE**
**HIGHWAY DIVISION**

~~HIGHWAY BUILDING~~ • SALEM, OREGON • 97310

July 16, 1971

Sverdrup & Parcel and Associates, Inc.
P. O. Box 369
Bellevue, Washington 98004

NOTED
A. E.

Attention Mr. R. Jack Allen
Project Engineer

Gentlemen:

Columbia River Bridge
Bridge 9555
Interstate 205

Reference is made to your letter of June 29 regarding a recent meeting in Salem on the preliminary design report studies for the I-205 Columbia River Bridge. Receipt is acknowledged of this letter and you are advised that no additional hydraulic investigations are required except the normal study that will accompany the revised pier details on which you are now working.

The last paragraph of your June 29 letter asked about additional hydraulic investigation and I am very sorry that we have neglected to advise you on this matter until the present time.

We will look forward to receiving the revised pier studies from you in the near future.

Very truly yours,

R. L. Porter
State Highway Engineer
By

Ivan D. Merchant
Bridge Engineer

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JUL 16 1971
OFFICE OF
STATE HIGHWAY ENGINEER

IDM:dh

cc A. E. Johnson

8705

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Consult

SVERDRUP & PARCEL AND ASSOCIATES, Inc.
*Consulting Engineers*
505 - 106TH AVENUE N. E.
P. O. BOX 369
BELLEVUE, WASHINGTON 98004

July 16, 1971

Johnson

Oregon State Highway Division
Highway Building
Salem, Oregon 97310

Attention: Mr. Ivan D. Merchant
Bridge Engineer

NOTED
A. E. JOHNSON

Gentlemen:

Subject: Supplemental Report
Columbia River Bridge No. 9555

We enclose five copies of a Supplemental Report to the Preliminary Design Report for the Columbia River Bridge. This has been prepared as requested during the meeting of June 15, 1971, in your office.

The report presents studies of various superstructure cross sections and pier orientations and, in addition, discusses scour and scour protection.

Although the recommendations of the Preliminary Design Report are still preferred, a superstructure cross section with a cantilever slab projection is presented which is structurally sound, and pier orientations are shown which can be adopted with some sacrifice to structural preference.

Your early review of this report will be appreciated.

Very truly yours,

SVERDRUP & PARCEL AND ASSOCIATES, Inc.

R. Jack Allen

R. Jack Allen, P. E.
Project Engineer

Report retained

Enclosures

cc: Mr. Robert L. Schroeder w/encl.

NOTED
TOM EDWARDS

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JUL 19 1971
BRIDGE DIVISION

8405

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MAY 24 1971
FOR FILING

Consult

May 20, 1971

Mr. R. E. Simpson
Division Engineer
Federal Highway Administration
Box 300
Salem, Oregon 97308

Dear Mr. Simpson:

On April 6, 1971 we submitted Sverdrup and Parcel's preliminary design report for the Columbia River crossing structure on Interstate 205 both to your office and to the State of Washington. We now have comments from both submissions. The consensus of recommendations would indicate the following conclusions:

1. Acceptance of a concrete superstructure of a cross section shown in Concept "D" on Plates 14 and 22 of the report.

2. The adoption of a staggered pier configuration with details modified to present the least stream flow impediment. Detailed study will be made in this area.

3. Footings and riprap shall be finally established after a test pile program is carried out. The main pier footings shall be specifically investigated with respect to piling foundation and elevation establishment below any possible channel deepening for navigation and possible stream degradation due to downstream dredging for water commerce or aggregates.

4. Pier shafts shall be given further study. Tentative acceptance of the configuration shown at Station 30.00 on Plate 23 of the report is recommended. However, we believe a more pleasing appearance esthetically can be achieved and will submit later configurations after completion of the pier study outlined in Item 2 above.

Minor recommendations as to signing and lighting were made in the comments. Details will be worked out satisfactorily during design.

We recommend your approval of the above criteria and the granting of the authority to proceed under the second or design phase of the Sverdrup and Parcel contract.

Very truly yours,

R. L. Porter
State Highway Engineer

By

Tom Edwards
Deputy State Highway Engineer

TE:ja

bc R. L. Porter
A. E. Johnson
Victor D. Wolfe
Ivan Merchant (enc.)

STATE OF WASHINGTON
DANIEL J. EVANS, GOVERNOR

1889

**WASHINGTON**
**STATE HIGHWAY COMMISSION**
**DEPARTMENT OF HIGHWAYS**
G. H. ANDREWS, DIRECTOR
HIGHWAY ADMINISTRATION BUILDING
OLYMPIA

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P. O. BOX 52
NO. 6 SPOKANE 99205
N. 2714 MAYFAIR ST.
NO. 7 BELLEVUE 98004
10806 N.E. 4TH ST.

May 12, 1971

Mr. R. L. Porter
State Highway Engineer
Oregon State Highway Division
Highway Building
Salem, Oregon   97310

Dear Mr. Porter:

In response to your transmittal of April 6, 1971, an examination has been made of the preliminary report data prepared for the I-205, Columbia River Bridge, by the consulting firm of Sverdrup and Parcel.

On the basis of the information contained in the design concept report and our experience in similar situations, we concur in the consultant's recommendation for a precast, post-tensioned concrete bridge.

In reviewing the recommended structure, we agree that the staggered pier arrangement should be utilized both from the standpoint that the navigational clearance requirements can be met and the precast concrete construction can be utilized.

The recommended architectural treatment for the superstructure and piers results in a bridge with greater structural integrity than does the less costly concrete structure described in concept B and therefore meets with our approval. Due to the depth of over-burden above the Troutdale formation at certain pier locations, the consultant recommends that pile foundations be used with the bottom of the footings located in a potential scour area. The consultant states that it is impractical to locate these footings in the Troutdale formation and recommends the use of rock riprap for scour protection. We concur with this proposal on condition that during final design, this problem is given extensive study and adequate riprap is specified in the contract plans. The consultant's recommended design proposes a variable slope on the exterior girder webs throughout the haunched portions of the superstructure. This will result in a warped surface in these portions of the structure. We recommend that this feature be further reviewed.

NOTED
R. L. PORTER

cy Merchant
5-20-71

It is our understanding that on Plate 21, the length of span over the Burlington-Northern tracks should be 295 feet rather than the 495 feet shown. Also, on Plate 16, we advise that reference should be made to Plate 9 rather than Plate 8 for tendon profile.

Two (2) recommendations are offered with respect to the signing indicated on Plate 19 of the report.

(1) Remove the down arrows from the large NORTH-205 through sign to obtain conformance with AASHO's 1970 edition of the "Manual for Signing and Pavement Marking" (figure 24, page 56).

(2) Delete the "Exit 25 MPH" from the exit directional sign as this information will appear on the exit speed sign opposite the gore of the off ramp.

The consultant's recommendations for illumination of this project are satisfactory and the geometric design indicated appears to be compatible with our current plans for developments at the north approach to the bridge.

With regards to the preliminary foundation report, two (2) pages have been singled out for comment.

Page 14 - There is concern that the use of reduction for eccentricity and load inclination may produce unreasonably conservative allowable bearing capacities. It appears the use of these values should be tempered with judgment.

Page 17 - Concern is also expressed here that the computation of pile capacity by the formula indicated will grossly underestimate pile capacity in dense granular soil.

In conclusion, we wish to express our appreciation for the opportunity afforded our department to review these preliminary reports and offer our comments.

Very truly yours,

G. H. ANDREWS
Director of Highways

W. M. Foster

By: W. M. FOSTER
Assistant Director for
Highway Development

WMF/cb

cc: Cooper
Stevens
Carroll
LeClerc
Gallagher
Mattson
Zirkle

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MAY 17 1971
OFFICE OF
STATE HIGHWAY ENGINEER

9555

Form FHWA-121 (12

UNITED STATES GOVERNMENT

# Memorandum

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

Box 300
Salem OR 97308

**DATE:** April 6, 1971

**In reply refer to:** 08-35.6

**TO** : Mr. R. L. Porter, State Highway Engineer
Salem, Oregon

**FROM** : R. E. Simpson, Division Engineer
Salem, Oregon

**SUBJECT:** Oregon Project I-205
Columbia River Bridge
Interim Preliminary Plans and Study Sketches

NOTED
C.A. CARPENTER

Johnson

RECEIVED
APR 12 1971
OFFICE OF
STATE HIGHWAY ENGINEER

We have received comments from our Region and Washington offices on your initial submission of the interim report for the preliminary design of the I-205 Columbia River Bridge. Because of the lack of information at this early stage of the study definite recommendations on pier orientation and location cannot be made. However, initial comments of our Hydraulic, Bridge, and Highway Beautification people were requested in order to assist in evaluating the various problems expected on such a monumental structure.

We believe that further hydraulic studies are required before deciding which of the proposed schemes are acceptable. It would appear desirable to have copies of the Bauer report and an aerial view of the bridge site accompanying the consultant's final submission for consideration during the hydraulic review. Scheme II offers the most satisfactory hydraulic solution and some modification of spans on the south approach where hydraulic problems have little influence would permit some reduction in the severe skew of these bents. If the hydraulic study indicated that Schemes II and IV, for example, or some other variation were acceptable, we would recommend comparative cost studies between the alternates. Cost could then be included in the final consideration along with the aesthetic foundation and structural problems.

4-14-71
Merchant, Please discuss with me. G E J

One of the items in the consultant's interim report on the studies of alternate pier shape is the relative scour protection required. The effectiveness of riprap around pier footings for protection against scour is questioned and we recommend that the piers be founded well below the estimated depth of scour without regard to any riprap. We feel that the consultant has not found the best possible pier shaft configuration for any of the pier orientations considered. Further study after selection of pier orientation is suggested.

Our Highway Beautification people believe that a single pier for both structures would be aesthetically superior compared to the twin piers at each bent. Single piers would undoubtedly require the alinement with

(more)

NOTED
W.N.D. MERCHANT

BUY U.S. SAVINGS BONDS REGULARLY ON THE PAYROLL SAVINGS PLAN

streamflow to satisfy hydraulic requirements. Our Highway Beautification people have prepared a sketch incorporating the single pier concept and have opened up the hammerhead pier configuration where the structure is low to enhance the appearance especially where the beam elements sink into the ground or approach the water. We would be happy to show you this sketch if desired.

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APR 14 1971
BRIDGE DIVISION

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MAY 5 1971
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Consult.

# OREGON STATE HIGHWAY DEPARTMENT

INTER-DEPARTMENT CORRESPONDENCE

Salem, Oregon
May 3, 1971

To: Memo to the Files

SUBJECT: Preliminary Design Report
Columbia River Bridge
I-205
Bridge 9555

On Tuesday, April 27, 1971, a meeting was held in the office of Mr. Edwards, Deputy State Highway Engineer, between representatives of Sverdrup & Parcel and the Highway Division. In attendance were Admiral Pelletier of the St. Louis office of Sverdrup & Parcel and Mr. Bane of their Bellevue, Washington office. Representing the Highway Division were Mr. Edwards, Mr. A. E. Johnson, Mr. Ivan Merchant, and the writer.

The consultants inquired as to the initial response of the Division on the preliminary design report. Mr. Edwards indicated that except for two items the Division was in general agreement with the data and the conclusions set forthe in the report. The Highway Division and the Federal Highway Administration both believe that the elevations of the footings for all the river piers should be lowered to an elevation below the estimated scour depth rather than to rely on riprap. The architecture of the piers should also be given greater emphasis. Consideration should be given to improving the esthetics of the piers by eliminating some of the square block shape effect.

There was some discussion on the general subject of the estimated cost of the various alternate structure types and span arrangements. These estimates are being reviewed and willbe discussed further at a later date. No preference is to be given to any type of structure in arriving at an estimated cost.

Mr. Edwards said that we anticipate having the comments from the Federal Highway Administration and the State of Washington on or before the middle of May. After their comments have been received and reviewed the consultants will be advised as to what additional action will be required on his part.

Walter J. Hart
Walter J. Hart
Bridge Administration Engineer

RECEIVED
MAY 4 1971
OFFICE OF
STATE HIGHWAY ENGINEER

NOTED
TOM EDWARDS

WJH:dh
cc Tom Edwards
A. E. Johnson
R. L. Schroeder

# STATE OF OREGON
# MICROFILMED PUBLIC RECORD

( IN ACCORDANCE WITH THE PROVISIONS OF ORS 192.040 THROUGH 192.070 )

NAME OF AGENCY
OREGON DEPARTMENT OF TRANSPORTATION

TITLE OF RECORD SERIES
Construction Contracts

ARRANGEMENT OF RECORDS
by Contract Numbers

INDEX

**INDEXING BEGINS WITH :** 8905 #6 **ENDS WITH** 8905 #2

**FLASH CARDS:**

**REMARKS:**

| CAMERA: MAKE AND MODEL | FILM TYPE | REDUCTION RATIO | REEL NUMBER | PROJECT NUMBER |
|---|---|---|---|---|
| Bell & Howell File Master | 16 mm | 24 X | 207 | |

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Joan Cokeley
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